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ABSTRACT

Approximately 250 students in grades 1-6 of two elementary schools, one utilizing an open classroom instructional program and the other a traditional instructional program, comprised the sample in this first year of a planned 2-year study. The study focuses on the assessment of the comparative effects of the two instructional programs on three student variables: (1) self-concept, (2) attitude toward school, and (3) academic achievement. Pretests on these variables were administered in May and June of 1972; posttests were administered in May and June of 1973. Analysis of covariance was used to analyze this data. In addition, data related to teacher attitudes and classroom environment and practices was collected and analyzed. The first-year results indicate that there were no statistically significant differences between the two programs in relation to the three major student variables, although questionnaires administered to the parents and pupils of the open classroom school indicated an improved attitude toward school. (Author)

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A Comparative Evaluation of the Effects of An Open Classroom Instructional Program And A Traditional Instructional Program

Pennsylvania Department of Education 1974

A Comparative Evaluation of the Effects of An Open Classroom Instructional Program And A Traditional Instructional Program

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February 1974

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SUMMARY

Approximately 250 students in grades 1 through 6 of two elementary schools, one utilizing an open classroom instructional program and the other a traditional instructional program, comprised the sample in this first year of a planned two-year study.

The study focuses on the assessment of the comparative effects of the two instructional programs upon three student variables: (1) self-concept, (2) attitude toward school, and (3) academic achievement. Pretests on these variables were administered in May and June of 1972; posttests were administered in May and June of 1973. Analysis of covariance was used to analyze this data. In addition, data related to teacher attitudes and classroom environment and practices was collected and analyzed.

The first-year results indicate that there were no statistically significant differences between the two programs in relation to the three major student variables, although questionnaires administered to the parents and pupils of the open classroom school indicated an improved attitude toward school.

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I. INTRODUCTION

Background of the Study

Open classroom education has been one of the most talked and written about "innovations" in elementary education during the past few years. Possibly as a result of the widespread criticisms leveled at traditional education in recent years and undoubtedly because of the many claims of the proponents of open education, a large number of educators, parents and citizens view the open classroom instructional strategy as an attractive alternative to more traditional instructional methods. This view has in many places led to the implementation of open classroom instructional programs, with much money spent to build or convert buildings, to train teachers, to purchase material and otherwise facilitate this implementation. In Pennsylvania alone, there are over 40 open space buildings either operating, under construction, or in the design phases. Many other schools have adapted or are adapting open education philosophy and programs to existing buildings with minor or no renovation of physical facilities.

However, as often happens, the implementation of these open philosophy programs has been carried out mainly as a result of a "bandwagon" effect, with little justification from research. Roland Barth, a leading advocate of open education, admits that "Despite the mass of information accumulating about open education, there is still no rigorous research concerning its effects upon the development of children's thinking, attitudes and behavior as compared with the effects associated with more traditional forms of education." (Barth, 1971, p. 117) Walberg and Thomas agree: "....There has been very little research and evaluation on open education, aside from testimonials by exponents and reporters." (Walberg and Thomas, 1972, p. 197)

Primarily, there appear to be two basic reasons for this lack of research. The first of these is the very recency of American interest in the concept of open classroom education. Widespread interest in the concept was first generated by a series of articles written by Joseph Featherstone for New Republic magazine in 1967. Thus, the actual implementation of open classroom instructional programs is quite recent, and there has been little time to conduct any type of empirical program evaluations.

The second reason for the lack of objective research data seems to be a resistance among practitioners of open classroom techniques to program evaluations. Specifically, there is a feeling among many of these people that available instruments are not sophisticated enough to accurately measure the types of outcomes predicted for open classroom pupils. (Nyquist and Hawes, 1972, p. 5)

However, an examination of the literature on open classroom education and on the types of outcomes claimed by supporters of the strategy does not generally support this contention.

Advocates of open classroom education believe that their programs will result in children having more positive attitudes toward school.

Because children's personal interests largely determine the activities in which they will be involved, they should not perceive school as boring or irrelevant. School should be an enjoyable, interesting place where rewarding and "fun" experiences occur. Further, the warm and trusting environment of the open classroom should assure that children will feel accepted, will not fear undue criticism, and will be encouraged to attempt and succeed in activities they are capable of performing. School, then, should be perceived as a likeable place, not just a tolerable place. (Rogers, 1969; Rathbone, 1971)

Open education advocates also say that the children's attitude toward themselves, their self-concept, is expected to become more positive for many of the same reasons. The warm, supportive classroom environment is seen to be especially important in this regard. Children should quickly learn that they are accepted for what they are, not criticized for being other than what they should be. As they succeed in self-initiated and self-directed activities, they gain a feeling of confidence. They see themselves as competent, self-reliant, autonomous individuals, capable of making decisions and exercising responsibilities. In this way, they develop a realistic and positive self-concept. (Rathbone, 1971)

In addition to these affective considerations, the effects of the open classroom may favorably influence cognitive achievements. Although there is little emphasis upon rote memory and the learner's interests to a great extent dictates what is studied, the basic skills and knowledge in reading, writing, mathematics and other subject areas are expected to be attained. (Rogers and Coe, 1971)

These claims of the proponents of open classroom education are very interesting. Their method of organizing instruction shows promise of transforming education to make possible the achievement of objectives that most educators would applaud. However, claims and promises have often been heard; less often have they been fulfilled. If open classroom education is, as its proponents claim, truly a viable alternative to more traditional forms of instruction, this viability should be established by means of objective, empirical evidence derived from scientific research.

In order to begin testing in a limited way the validity of the claims of the proponents of open classroom education, the Division of Research, Bureau of Information Systems, Pennsylvania Department of Education, arranged to evaluate the open classroom program at Sporting Hill Elementary School, Manheim Central School District during the 1972-73 and 1973-74 school years. This is the first year report of that evaluation.

Purpose and Objectives

The major objective of the study is to attempt to answer the following questions:

1. Is there a significant difference between the self-concept

of children involved in an open classroom instructional program and those involved in a traditional program?

2. Is there a significant difference between the attitudes toward school of children involved in an open classroom instructional program and those involved in a traditional program?

3. Is there a significant difference between the level of achievement in basic skills of children involved in an open classroom instructional program and those involved in a traditional program?

4. Does teaching in an open classroom cause a change in teacher attitudes toward child-centered policies and practices in education?

5. What is the extent of the changes in classroom environment and practices resulting from continued experience with the open classroom?

II. PROCEDUKES

Sample

The study is being conducted in Manheim Central School District, Lancaster County, Pennsylvania, and involves two similar elementary schools. Sporting Hill Elementary School is the experimental school, having been remodeled during the summer of 1972 to facilitate the implementation of an open classroom instructional program. White Oak Elementary School is the comparison school. The two schools, in terms of physical plant, are very similar since both were built from the same set of architectural plans approximately 20 years ago. Both schools have six regular teachers and approximately 150 students in grades 1 through 6. Both serve rural populations living on farms or in very small towns.

A major dissimilarity between the two schools in the study which should be pointed out is that Sporting Hill, the open classroom school, had six student teachers in the fall semester and another six in the spring semester from Millersville State College during the first year of the study. White Oak, on the other hand, did not have any student teachers.

Design

The design used in the study is a modification of the Nonequivalent Control Group Design (number 10, Stanley and Campbell, 1966, p. 47). Because of the usual administrative constraints, neither random assignment of students to treatments nor random assignment of school to treatment was possible.

However, except for the designed openness of the experimental school, the two schools are quite similar in terms of physical plant, number of grades, classes per grade and experience of teachers. Because both are neighborhood schools drawing pupils from very similar types of families and residential areas, it is believed that there is no inherent bias in terms of socioeconomic status or ability level of students. Thus, except for the type of instructional program, the experimental and comparison students are felt to be equivalent. Accordingly, the statistical unit of measurement used is the individual student scores. The design of the analysis of the first year of the study generally may be pictured as follows, where O is observations or measurements and X is experimental treatments.

Schools	May 1972		May 1973
Sporting Hill	O	X	O
White Oak	O		O

Treatments

1. Comparison treatment

The comparison treatment is basically a typical self-

contained classroom type of instructional program with designated time periods for the normal subject matter areas.

2. Experimental Treatment

The experimental treatment is an open classroom instructional program based on a model designed and implemented by the personnel of the Educational Development Center at Millersville State College, Millersville, Pennsylvania. This method of open classroom instruction emphasizes the following components (as described in the brochure distributed by Millersville State College):

a. Team Teaching

Team teaching is planning, working and evaluating together in order to provide the best possible learning experience for youngsters. Planning and evaluating are the key factors of team teaching. Without these elements, team teaching cannot function effectively. Teachers must freely communicate with each member of the team. Teams should be designed so that the strengths and interests of each team member are used to their greatest potential.

b. Individualization

Individualization means teaching a child at his present level of achievement. It can mean instruction to a large group, instruction to a small group, and in some instances a one-to-one situation. Individualized instruction means humanizing, personalizing, and caring for each child as a human being. It means recognizing and building on each child's capabilities and limitations. It means making each child feel he is important and has something to contribute.

c. Nongradedness

Nongradedness eliminates the traditional labels of 1st grade, 2nd grade, etc. Children move through the various basic skills without the constraints of grade levels. Each child can move at his own rate without the constant fear of failure. This is made possible through revised grouping procedures. Multiaged groups are developed at the primary and intermediate levels. This type of grouping allows for interaction between children of different ages and abilities--interaction that knocks down the barriers that normally separate our children--barriers that allow a child to get some perspective of his growth

and development in relation to other people.

d. Continuous Progress

A system of curricular organization that places a child in a level that reflects his educational development through a sequence of learning skills. Each child's placement is determined through the use of diagnostic tests and instruments, and controlled by a record-keeping system. The major emphasis of such a system is flexibility.

e. Unified Media

Unified media is an integral part of the program in which instructional and other services related to print, nonprint, audio-visual media, manipulative devices, and "hands on" activities and materials are administered in a single, unified program.

A typical learning day is as follows.

7:50 - 8:15 Opening Exercises

The opening exercises of the school day usually find all the children in their home base. At this time lunch count is taken, beginning exercises are conducted, the daily schedule is discussed and special activities are arranged. Occasionally, when a child or group of children have completed a major project they wish to share with the other children, the complete unit (primary or intermediate) will come together to observe. Generally, though, this time of day is used as a sort of launching pad from which the day's activities flow.

8:15 - 9:45 Language Arts

During this time block, such areas as spelling, creative writing, speaking, dramatics, English, and reading are covered. Within each unit the group is determined by evaluation of the child's progress and may, and often does, cut across grade levels (1, 2, 3 for the primary unit and 4, 5, 6 for the intermediate). Here children might be taught by large group instruction for a new skill, small group instruction for a review of a previously taught skill, or by themselves on individually prescribed tasks. During this block of time, children work and progress at their own rates. The child is constantly being reevaluated in all the language arts areas and reassigned to different groups and teachers depending on his progress. The major emphasis at all times is upon individualization of instruction based on each child's unique set of abilities and needs.

9:45 - 10:45 Math

Again, the children's groupings and assignments to teachers are

based upon their level of achievement rather than upon age or grade level. The beginning of class will find the teacher and children making plans for math that day. Problems are exchanged for later solutions. There might be instruction to the whole group on a new concept. Times may be posted for small group meetings. And, those children who are capable of working on their own are allowed to go their own way.

11:00 - 12:00 Lunch

The lunch hour is an integral part of the day, in that it allows time for children to romp freely, exercise with games organized and decided upon by the children and teacher, and pursue interests initiated in the classroom that the child might otherwise not find time for during the regular school day.

12:00 - 2:15 Social Studies and Science

The social studies-science block of time in the afternoon provides a great many opportunities for the children and teacher to discuss, develop and explore the tremendous variety of interests of the children. Learning centers, work packets, committee work and individual research work are a few facets of the learning process that can be seen here.

Large groups are gathered for instruction in a concept new to most of the children. Small groups are organized for review work, setting new courses, for evaluation of progress, etc. And, as always, the individual child can be seen pursuing his or her own interests at his or her own rate of speed. The teacher, in this setting, becomes a consultant, a helper, a guide, a diagnostician--facilitator of learning.

A key element in the Sporting Hill Elementary School instructional program is the system of individual contracts between teacher and child. This system, used in varying degrees in all the subject areas, is seen as a major way of individualizing instruction and allowing the learner to initiate, guide, and be responsible for his or her own activities.

Under the contract system, children confer individually with their teachers and agree to master within a given period of time a certain skill or perform a certain amount of work, such as preparing and giving a report, understanding a scientific concept, solving a certain number of math problems, or reading a book. Each of the six regular teachers in the school are responsible for working out contracts with approximately 25 children. Each teacher is responsible to make certain that each child covers certain subject areas such as reading, math and science. These contracts, depending upon the nature of the child, vary in complexity and time and can be as short as two or three hours or as long as two weeks. Within certain limits, determined by the teacher's assessment of the child's need, the individual learner can decide the type of contact he or she will enter into, thus exercising some influence over his or her own activities.

Instrumentation

1. Self-Concept

Assessment of the comparative effects of the instructional programs upon the self-concept of children is being accomplished by the administration of the Pictorial Self-Concept Scale (grades 1 through 3) and the Piers-Harris Children's Self-Concept Scale (grades 4 through 6).

Both instruments were based upon the theoretical definition of self-concept proposed by Jersild (1952).

The Pictorial Self-Concept Scale developed by Bolea, Felker and Barnes (1971) consists of 50 cartoon-like picture cards (Appendix A-1). The subjects sort the cards into one of three piles (distinguished by three larger, differently colored background sheets), according to whether the figure designated by a star is like him, sometimes like him, or not like him at all. Cards on which the central figure is a female are used with girls and cards on which the central figure is a male are used with boys. A split-half reliability of .85 with 1,813 subjects is reported by the developers. In addition, they cite six studies which provide evidence of the validity of the instrument, one of which is a correlation between scores on their instrument and the Piers-Harris instrument ($r = .42$, $N = 63$ elementary pupils, significant at less than .01 level).

The Piers-Harris Children's Self-Concept Scale (Appendix A-2) was found to evidence internal consistency reliability, both split-half and a K-R 21, of .90 with two separate administrations to 6th grade pupils and one administration to 3rd grade pupils. Test-retest reliability after four months for pupils in grades 3, 5 and 6 was reported to be .71 or higher. Five studies which support the validity of the instrument are reported in the test manual. (Piers and Harris, 1969)

2. Attitude Toward School

Assessment of the comparative effects of the programs upon the children's attitudes toward school is being accomplished by the administration of the "Faces" test (Appendix A-3), an attitude inventory developed by personnel in the Division of Research of the Pennsylvania Department of Education and Millersville State College to evaluate the 1971 and 1972 "Summer Happenings." (Anttonen, 1972)

Based on a factor analysis of findings gathered with a longer form of the instrument during the 1971 "Summer

Happening" by Dr. George Brehman, Division of Research, Bureau of Information Systems, PDE, the "Faces" instrument yields a total score and scores on three factors: (1) attitude toward school climate, (2) attitude toward independent study and (3) attitude toward school learning. (Brehman, 1972) Analysis of the instrument based on the June 1972 prettest of 256 students shows an internal consistency reliability (coefficient alpha) of .82 for the total score. Analysis for the same sample shows coefficient alpha reliabilities for the factors of: (1) attitude toward school climate--.80, (2) attitude toward independent study--.62 and (3) attitude toward school learning--.66. Both total scores and factor scores are included in the statistical analysis.

In addition to the "Faces" instrument, two other measures of attitude toward school are being used. The first of these is a record of days of attendance, with the expectation that more positive attitudes toward school will be reflected in a lower rate of absence.

In addition, during January 1973 the students at Sporting Hill School and their parents were requested to complete questionnaires (Appendix E) with queries concerning their feelings about the open classroom school. The responses to these questionnaires are seen as being reflective of attitude toward school.

3. Academic Achievement

The Stanford Achievement Test battery is being used to assess the comparative attainment of basic skills. Split-half reliabilities for the subtests included in the battery for grades 1 through 6 are all .71 or higher with most of them being above .85.

4. Teacher Attitudes

Teacher attitudes are being measured by Lindgren and Patton's "Opinionnaire on Attitudes Toward Education." (Shaw and Wright, 1967, pp. 80-83) Essentially, the instrument measures teacher attitudes toward the desirability of using authoritarian methods and the desirability of subject-matter-centeredness versus learner or child-centeredness. A corrected split-half reliability of .82 has been reported for the questionnaire (Appendix A-4), along with four studies supporting its validity.

The major reason for the use of this instrument is to attempt to discover any change in teacher attitudes which might be produced as a result of their involvement in the program. It

would appear that their perception of the value and success of the innovative program would be reflected in their responses to the questionnaires, thus providing further evidence for determining its effectiveness.

5. Classroom Environment and Practices

Assessment of this area is being accomplished through use of an observation rating scale (Appendix A-5) developed by the Education Development Center, Inc., Newton, Massachusetts. (Walberg and Thomas, 1972, pp. 197-207) Originally created for use as a research tool, the instrument has shown that it can reliably discriminate between "traditional" and "open" classrooms.

The most appropriate use of the instrument, according to its developers, is as a survey instrument in a school system which is beginning to experiment with open education. It is suggested that the instrument be used to gather baseline data against which future data collected with the instrument can be compared. This suggestion has been adhered to and in this way the changes in classroom practices and environment in both schools are being assessed.

A further use of the instrument is to determine if there is a difference in the degree of "openness" between the classroom environment and practices of the open classroom school and those of the traditional school.

Data Gathering Procedures

Pretests on the "Faces" inventory and the self-concept instruments were administered during the latter part of May and the first week of June 1972. The "Faces" inventory was administered in late May by district personnel for their own evaluation purposes, so rather than duplicate the testing, the results of their administration were used in this study.

The self-concept instrument for grades 1 through 3 (Pictorial Self-Concept Scale) was administered to all the pupils in the study by the principal investigator. In all cases, administration took place in the normal classroom environment with the regular classroom teacher assisting the principal investigator.

The self-concept instrument for grades 4 through 6 (Piers-Harris Self-Concept Scale) was administered to their classes by the regular classroom teachers. The administration of both these instruments took place during the morning of June 5, 1972 in the comparison school and the morning of June 6 in the experimental school.

The teacher attitude opinionnaires were given at the time of the self-concept testing to the principals of the two schools in stamped,

addressed envelopes for distribution to the teachers who completed and mailed them to the investigator.

The IQ scores on the Otis-Lennon Mental Ability which were used as the covariate in the achievement segment of the analysis for grades 2 through 6 were available in the district files. Since the district tests only in grades 2, 4 and 6, it was necessary in grades 3 and 5 to use the IQ scores resulting from the November 1971 testing. In grades 2, 4 and 6, though, the scores on the November 1972 administration were used.

The posttest administration of the "Faces" inventory and the two self-concept instruments followed essentially the same procedures as those used during pretesting. The only major difference was that formal written directions for administration and sample items were prepared and used with the "Faces" inventory, which were administered by the individual classroom teachers. These were administered during the week of May 21-25, 1973. The two self-concept instruments were administered in the same manner by the same people who had done the pretesting, with the comparison school tested during the morning of May 22, 1973 and the experimental school during the morning of May 23, 1973.

Once again, the teacher attitude questionnaires were given to the two principals for distribution and were later completed and mailed by the individual teachers to the investigator.

The Stanford Achievement Test was administered by the individual classroom teachers during the week of May 7-11, 1973. They were asked to adhere to the suggestions given in the manual of administration directions prepared by the test publisher. All the teachers involved in the study had prior experience in the administration of achievement test batteries. With the exception of one classroom of pupils who had a field trip scheduled during the week of administration, all the subscales were administered to all the subjects during the scheduled week of administration. This single class was administered the final subscale during the early part of the following week.

The classroom observation data used to assess the comparative degree of openness of the two instructional programs was collected at periodic intervals throughout the school year, with the first observation performed approximately a month after the start of the school year and the remaining five at approximately six-week intervals thereafter. Thus, for each classroom in the two schools, there was a series of six observations.

Although the openness of the Sporting Hill building did not allow the clear-cut delineation of classroom groups that was provided by the self-contained classroom arrangement of the White Oak building, it was possible during each of the six observation days to observe each teacher in the experimental school interacting with a class-sized group. It was in this type of situation that the observation rating scales were completed.

The attendance data used as a measure of attitude toward school was secured from the district's official attendance registers for the 1971-72 and the 1972-73 school years. The parent and pupil questionnaire data were taken from questionnaires administered by district personnel during January 1973.

Statistical Analysis

The basic statistical method used to compare the first year results of the two programs was analysis of covariance. For the "Faces" inventory of attitude toward school and the two self-concept instruments, the scores on the pretests administered in June 1972 were used as covariates of the scores on the same instruments administered as posttests in June 1973. Since it was not possible to administer the Stanford Achievement Test in June of 1972, IQ scores on the Otis-Lennon Mental Ability Test were used as a covariate on the scores of the Stanford Achievement Tests administered in late May of 1973. Otis-Lennon IQ scores for nearly all the students in the sample were available in the district's file.

Where possible, the analyses of covariance were performed in factorial designs using experimental treatment and grade level as the factors involved. There were several reasons for this, a major one being economy. With subscale as well as total scores being analyzed, the number of separate analyses would have been well over 100 had individual subscale by grade level analyses been performed. Further, had this large number of independent comparisons been performed it is possible that several would have been significant by chance alone, thus complicating interpretation of results. In addition, the information gained concerning grade level differences, although secondary to the primary comparison involved in the treatment factor, i.e., open classroom program vs. traditional program, is felt to be of value. Finally, it is possible, by using this design, to assess the statistical significance of the interaction of grade level and treatment program, further information felt to be of value.

The self-concept segment of the statistical analysis was performed by using two 2 x 3 factorial designs, one for grades 1 through 3 and another for grades 4 through 6. There were two basic reasons for this breakdown into two separate 2 x 3 analyses: (1) the instruments for the two groups were different, and (2) the instructional program itself is delineated in this way, with a primary unit (grades 1 to 3) and an intermediate unit (grades 4 to 6).

The analysis for the primary grades consists only of a total score comparison between the two treatments since the Pictorial Self-Concept Scale yields only a single, overall score. The analysis for the intermediate grades includes comparison of six subscale scores as well as a total score.

The attitude toward school segment of the statistical analysis involved the comparison of two measures, the primary one being the "Faces" inventory. The analysis of this instrument was performed using a 2 x 2

(grades 2 and 3) and a 2 x 3 (grades 4, 5 and 6) factorial design.

The first grade comparison of attitude toward school was accomplished with a simple analysis of variance on the posttests. For some reason, possibly a testing anomaly or a lack of understanding on the students' part, the internal consistency reliability of the "Faces" inventory in the 1st grade pretest administration was unsatisfactory, so the scores in this grade could not validly be used as covariates.

The analysis of the "Faces" instrument for all grades involved comparisons of three subscale scores and a total score.

The second measure which was involved in the attitude toward school segment of the analysis was days of attendance. Again, because of the primary-intermediate breakdown of the experimental treatment variable, two 2 x 3 factorial analyses of covariance were performed, one for grades 1 to 3 and another for grades 4 to 6. The covariate in these analyses was days of attendance in the 1971-72 school year; the criterion was days of attendance in the 1972-73 school year, the first year of the study.

In the academic achievement segment of the data analysis, factorial analyses were not performed. Because grade level scores on the Stanford Achievement Tests were used as criterion measures but were not available for use as the covariate, IQ scores were used. This resulted in a situation where the covariate IQ scores for all six grades were expressed on an identical scale, but the criterion grade level scores were expressed on a different scale for each of the six grades. This meant that different grade levels could not be included in a factorial analysis of covariance without a transformation of either the IQ or grade level scores to allow for an accurate computation of the correlation between the covariate and criterion measures.

Such a transformation was felt to be impractical, so the achievement data, with the exception of 1st grade, was analyzed on a grade-by-grade basis with analysis of covariance. Because IQ scores were not available for the 1st grade pupils in the study, the 1st grade analysis consisted of analysis of variance of the scores on the Stanford Achievement Tests.

In 1st grade, the results on the six subscales of the Primary I Battery were analyzed, in 2nd and 3rd grades the results of the seven subscales in the Primary II Battery were analyzed, in 4th grade the results of the eight subscales in the Intermediate I Partial Battery were analyzed and in 5th and 6th grades the results of the seven subscales in the Intermediate II Partial Battery were compared.

The teacher attitudinal data was analyzed in two ways. First, an analysis of variance was performed on the experimental teachers' scores from pre to post to determine if there had been a change in their attitudes during the course of the year.

Second, an analysis of covariance was performed to compare the attitudes of the teachers in the experimental school with those of the teachers in the comparison school.

The classroom observation data was also analyzed in two ways. First, a repeated measures analysis of variance was performed on the results for each of the schools separately in order to determine if the degree of openness of their instructional programs changed during the course of the school year. Second, the means of the six observations for each of the individual classrooms were computed and used in analysis of variance to determine if there was a significant difference in the degree of openness of the instructional programs of the two schools.

III. RESULTS

The format of this chapter is arranged so that the topics of discussion are in the same order as the questions to be addressed in the study are listed on pages 2 and 3. Because of the large number of separate analyses performed, the analysis of variance and covariance source tables are not included in the text. They are shown in Appendix B.

A. Self-Concept

1. Grades 1-3

Table 1 shows the summary information for the pre- and posttest administrations of the Pictorial Self-Concept Scale as well as the F-ratios generated by the analysis of covariance.

TABLE 1

SUMMARY DATA FOR PICTORIAL SELF-CONCEPT SCALE

	Open Classroom School					Traditional School				
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
1	12	60.16	10.95	65.79	4.15	57.19	19	60.03	7.57	66.39	5.77	65.83
2	14	64.37	5.03	63.57	6.11	63.68	17	65.61	7.63	65.76	8.13	65.60
3	22	66.93	6.66	64.37	5.81	63.69	27	67.82	3.17	62.99	6.60	62.03

F-Tests	F-Ratio
Treatment (Open vs. Traditional)	0.12
Grade (1 vs. 2 vs. 3)	2.80
Treatment x Grade	0.87

As can be seen, the analysis showed no significant difference between the open classroom and traditional treatment groups or among 1st, 2nd and 3rd grades, and no significant interaction between treatment and grade level.

2. Grades 4-6

Table 2 includes the summary information of the total score for the pre- and posttest administrations of the Piers-Harris Self-Concept Scale.

TABLE 2

SUMMARY DATA FOR TOTAL SCORE OF PIERS-HARRIS SELF-CONCEPT SCALE

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
4	19	55.26	13.79	51.58	13.39	51.00	25	56.72	12.58	59.60	12.09	57.80
5	20	58.65	11.04	56.39	12.60	51.42	26	55.31	14.17	56.00	13.09	55.39
6	23	49.13	13.32	57.74	11.35	61.47	28	51.50	14.07	52.75	12.70	54.02

F-Test	F-Ratio
Treatment (Open vs. Traditional)	0.92
Grade (4 vs. 5 vs. 6)	4.02*
Treatment x Grade	8.18**

*Significant beyond .05 level
**Significant beyond .01 level

The results of the total score analysis show that for the major comparison, open classroom program vs. traditional program, there was not a significant difference. However, there was a statistically significant difference among the grade level results as well as a significant interaction between the grade level and treatment variables.

Because the interaction effect was significant, any attempt to explain the results of the analysis should be clearly recognized as tentative. It appears, though, that the significance of the grade level difference may be attributed to the rather dramatic increase in the mean score from pre to post of the 6th grade pupils in the experimental school. The magnitude of this increase, from 49.13 on the pretest to 57.74 on the posttest, resulted in an adjusted posttest mean of 61.47. This was quite a bit higher than those of the other groups in the analysis.

The performance of the 6th grade pupils in the experimental school also appears to have contributed to the significance of the interaction effect. An examination of the adjusted means of the groups in the analysis shows that the pupils in grades 4 and 5 of the experimental school did not score as well as their counterparts in the traditional school. However, the opposite result in 6th grade, combined with this effect in grades 4 and 5,

apparently produced a significant interaction.

Tables 3 through 8 list for the six subscales of the Piers-Harris Self-Concept Scale the summary information of the pre- and posttest administrations.

TABLE 3

SUMMARY DATA FOR "BEHAVIOR" SUBSCALE OF PIERS-HARRIS SELF-CONCEPT SCALE

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
4	19	13.89	3.68	12.89	4.29	13.21	23	14.88	2.59	15.04	2.88	14.79
5	26	15.54	2.83	14.81	3.30	14.17	26	15.23	3.63	15.42	2.98	14.96
6	23	12.87	2.65	14.70	2.58	15.41	28	13.96	4.16	13.93	3.97	14.21

F-Test	F-Ratio
Treatment (Open vs. Traditional)	0.58
Grade (4 vs. 5 vs. 6)	1.50
Treatment x Grade	4.63*

*Significant beyond .05 level

TABLE 4

SUMMARY DATA FOR "INTELLECTUAL AND SCHOOL STATUS" SUBSCALE OF PIERS-HARRIS SELF-CONCEPT SCALE

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
4	19	10.68	4.50	10.37	4.02	10.50	23	11.20	4.02	12.04	3.74	12.44
5	26	11.81	3.63	10.54	3.42	9.95	26	10.89	4.01	10.42	4.12	10.43
6	23	10.13	4.34	12.26	4.00	12.73	28	10.54	4.11	9.43	4.04	9.66

F-Test	F-Ratio
Treatment (Open vs. Traditional)	0.20
Grade (4 vs. 5 vs. 6)	2.41
Treatment x Grade	8.61**

**Significant beyond .01 level

TABLE 5

SUMMARY DATA FOR "PHYSICAL APPEARANCE AND ATTRIBUTES" SUBSCALE
OF PIERS-HARRIS SELF-CONCEPT SCALE

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
4	19	6.42	2.48	5.15	2.36	4.93	25	6.40	3.15	7.60	2.81	7.39
5	26	6.81	2.51	6.50	2.89	6.06	26	5.62	3.53	5.92	3.01	6.15
6	23	5.26	3.17	7.39	3.09	7.81	28	5.64	2.98	6.89	3.21	7.10

F-Test	F-Ratio
Treatment (Open vs. Traditional)	2.32
Grade (4 vs. 5 vs. 6)	4.95**
Treatment x Grade	5.34**

**Significant beyond .01 level

TABLE 6

SUMMARY DATA FOR "ANXIETY" SUBSCALE
OF PIERS-HARRIS SELF-CONCEPT SCALE

	Open Classroom School						Traditional School					
Grade	Number of Subject	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
4	19	9.11	2.08	8.90	2.49	8.68	25	8.80	2.94	9.16	2.30	9.10
5	26	9.65	2.31	9.08	2.40	8.53	26	8.77	2.94	9.35	2.64	9.31
6	23	8.04	2.59	9.30	2.10	9.68	28	7.93	2.79	7.79	2.63	8.23

F-Test	F-Ratio
Treatment (Open vs. Traditional)	0.06
Grade (4 vs. 5 vs. 6)	0.02
Treatment x Grade	4.96**

**Significant beyond .01 level

TABLE 7

SUMMARY DATA FOR "POPULARITY" SUBSCALE
OF PIERS-HARRIS SELF-CONCEPT SCALE

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
4	19	6.84	3.10	6.90	3.20	7.06	25	7.12	2.46	7.76	2.92	7.74
5	26	8.39	2.89	7.42	2.98	6.57	26	6.77	3.48	6.89	3.36	7.09
6	23	6.70	3.32	8.09	2.83	8.34	28	6.64	3.51	7.54	3.54	7.83

F-Test	F-Ratio
Treatment (Open vs. Traditional)	0.33
Grade (4 vs. 5 vs. 6)	3.45*
Treatment x Grade	0.90

*Significant beyond .05 level

TABLE 8

SUMMARY DATA FOR "HAPPINESS AND SATISFACTION" SUBSCALE OF THE PIERS-HARRIS SELF-CONCEPT SCALE

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
4	19	7.32	1.64	6.63	1.86	6.48	25	7.48	1.76	7.60	1.36	7.35
5	26	7.31	1.26	7.15	1.97	7.01	26	7.08	2.26	7.00	2.17	6.99
6	23	6.17	2.55	7.52	1.65	8.04	28	7.00	1.72	7.07	2.31	7.11

F-Test	F-Ratio
Treatment (Open vs. Traditional)	0.01
Grade (4 vs. 5 vs. 6)	2.35
Treatment x Grade	3.67*

*Significant beyond .05 level

As would be expected, since the total score on the Piers-Harris is an accumulation of the subscale scores, the pattern of results of the subscale analyses rather closely follows that of the total score analysis. None of the subscale comparisons reveal a significant difference between the traditional and open classroom treatments. Five of the six have a significant interaction between the treatment and grade level variables while two of the six have a significant difference among the grade levels.

B. Attitude Toward School

1. Faces Inventory

a. Grade 1

Table 9 shows that there were no statistically significant differences between the open classroom and traditional 1st grade pupils on either the total score analysis or the three subscale analyses.

TABLE 9

SUMMARY DATA FOR ANALYSIS OF "FACES" INVENTORY
GRADE 1

	Total Score		"School Learning" Subscale		"Independent Study" Subscale		"School Climate" Subscale	
	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School
Number of Subjects	19	25	19	25	19	25	19	25
Mean	46.37	45.6	16.95	16.36	11.21	10.68	18.21	18.56
Standard Deviation	5.52	5.49	2.84	3.55	2.51	2.84	2.23	2.40
F-Ratio	0.21		0.35		0.42		0.24	

b. Grade 2 and 3

Table 10 shows that both the treatment comparison and the grade level comparison of the total scores on the "Faces" inventory in grades 2 and 3 are significant beyond the .01 level. The 2nd and 3rd grade pupils in the open classroom school scored significantly higher on the inventory than their counterparts in the traditional school and the 3rd grade pupils scored significantly higher than the 2nd grade pupils.

TABLE 10

SUMMARY DATA FOR TOTAL SCORE OF "FACES" INVENTORY
GRADES 2 AND 3

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
2	14	43.36	7.43	43.36	7.30	43.36	18	50.33	7.49	39.22	9.88	35.18
3	23	40.52	6.22	45.09	4.49	46.73	25	40.96	6.90	41.96	7.21	43.35

F-Tests	F-Ratio
Treatment (Open vs. Traditional)	15.80**
Grade (2 vs. 3)	14.14**
Treatment x Grade	2.76

**Significant beyond .01 level

An examination of the adjusted means of the four groups in this analysis indicates that a great deal of both the treatment and the grade level

difference can reasonably be attributed to the performance of the 2nd grade pupils in the traditional school. The mean score of this group on the pretest was 50.33, which was higher than the other three groups in the analysis. However, the same group on the posttest administered at the end of the first year of the study earned a mean of 39.22, which was lower than any of the other three groups. This decrease resulted in an adjusted posttest mean of 35.18, which is over a full eight points lower than the adjusted means of the other three groups.

There appears to be a good possibility that the drop in the mean score for this group of pupils was caused by the fact that there was a change of teachers in their classroom midway through the school year. Quite possibly this change, along with the attendant changes in many of the established classroom routines, resulted in a change in the children's attitudes toward school.

The same pattern of results is evident in the subscale data shown in Tables 11, 12 and 13.

TABLE 11

SUMMARY DATA FOR "SCHOOL LEARNING" SUBSCALE OF "FACES" INVENTORY
GRADES 2 AND 3

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Means	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
2	14	15.57	4.91	15.50	4.91	14.64	18	17.44	4.88	13.06	4.05	11.25
3	23	11.48	2.81	13.74	2.82	14.94	25	12.52	3.63	13.04	4.14	13.72

F-Test	F-Ratio
Treatment (Open Vs. Traditional)	8.44**
Grade (2 vs. 3)	2.39
Treatment x Grade	1.92

**Significant beyond .01 level

TABLE 12

SUMMARY DATA FOR "INDEPENDENT STUDY" SUBSCALE OF "FACES" INVENTORY
GRADES 2 AND 3

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
2	14	10.86	2.91	11.21	2.08	11.49	18	13.61	1.88	11.33	3.11	11.07
3	23	12.22	2.34	12.83	1.85	12.84	25	12.16	1.77	12.60	1.68	12.62

F-Test	F-Ratio
Treatment (Open vs. Traditional)	0.37
Grade (2 vs. 3)	8.55**
Treatment x Grade	0.04

**Significant beyond .01 level

TABLE 13

SUMMARY DATA FOR "SCHOOL CLIMATE" SUBSCALE OF "FACES" INVENTORY
GRADES 2 AND 3

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
2	14	16.93	2.59	16.64	2.53	16.73	18	19.28	2.19	14.83	3.85	14.27
3	23	16.83	2.57	18.52	1.37	18.63	25	16.28	2.91	16.32	2.90	16.58

F-Test	F-Ratio
Treatment (Open vs. Traditional)	12.89**
Grade (2 vs. 3)	10.68**
Treatment x Grade	0.18

**Significant beyond .01 level

The treatment effect is significant beyond the .01 level for both the "School Learning" and "School Climate" subscales. For both of these analyses, the significance of the treatment comparison appears to have resulted from the same situation as occurred in the total score analysis. That is, the rather large drop in the mean score from pre to post for the 2nd grade group in the traditional schools resulted in adjusted posttest means for this group which were low enough, in comparison to the other three groups in the analysis, to cause the treatment difference to be significant. This pattern is also evident in the analysis of

the "Independent Study" subscale results, but, possibly because of the smaller number of items in this subscale, the effect was not strong enough to be statistically significant.

Again, although the results of the factorial analysis of these subscales indicate that the treatment effect is significant for two of the three subscales and supports the effectiveness of the open classroom program, it does not seem probable that the significance of the results were in fact caused by that program.

c. Grades 4, 5 and 6

The results of the analysis of the total scores on the "Faces" inventory and the analyses of the three subscales for 4th, 5th and 6th grades do not indicate any significant difference between the two programs in relation to their impact upon the attitude toward school of the pupils involved.

TABLE 14

SUMMARY DATA FOR TOTAL SCORE ON "FACES" INVENTORY
GRADES 4, 5 AND 6

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
4	19	45.95	6.21	44.63	6.27	42.76	27	43.85	6.16	42.00	5.22	41.33
5	23	42.09	5.93	40.39	6.42	40.73	23	42.65	5.10	44.04	5.51	44.06
6	23	39.84	4.82	41.96	5.03	43.59	28	42.18	6.20	40.71	4.94	41.00

F-Test	F-Ratio
Treatment (Open vs. Traditional)	0.08
Grade (4 vs. 6 vs. 6)	6.07
Treatment x Grade	5.82**

**Significant beyond .01 level

TABLE 15

SUMMARY DATA FOR "SCHOOL LEARNING" SUBSCALE OF "FACES" INVENTORY
GRADES 4, 5 AND 6

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
4	19	14.47	3.94	13.58	3.27	12.77	27	13.44	3.17	12.41	2.94	12.22
5	23	12.09	2.95	12.44	3.93	13.07	23	13.52	3.15	14.04	3.18	13.81
6	23	11.65	2.39	12.65	2.53	13.55	28	13.71	4.01	12.46	3.09	12.12

F-Test	F-Ratio
Treatment (Open vs. Traditional)	0.99
Grade (4 vs. 5 vs. 6)	1.71
Treatment x Grade	2.39

TABLE 16

SUMMARY DATA FOR "INDEPENDENT STUDY" SUBSCALE OF "FACES" INVENTORY
GRADES 4, 5 AND 6

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
4	19	12.37	2.24	12.74	2.10	12.57	27	12.26	2.23	12.63	1.86	12.51
5	23	12.00	1.88	11.04	2.01	11.06	23	12.09	1.98	12.83	1.86	12.80
6	23	11.91	2.21	12.04	1.87	12.10	28	11.64	1.81	11.65	2.04	11.84

F-Tests	F-Ratio
Treatment (Open vs. Traditional)	2.98
Grade (4 vs. 5 vs. 6)	2.00
Treatment x Grade	5.35**

**Significant beyond .01 level

TABLE 17

SUMMARY DATA FOR "SCHOOL CLIMATE" SUBSCALE OF "FACES" INVENTORY
GRADES 4, 5 AND 6

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean	Number of Subjects	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation	Adjusted Posttest Mean
4	19	19.11	2.00	18.32	2.41	17.59	27	18.15	2.20	16.96	2.10	16.67
5	23	18.00	2.56	16.91	2.80	16.69	23	17.04	2.25	17.17	2.08	17.39
6	23	16.26	1.60	17.26	1.79	17.83	28	16.82	2.09	16.61	2.22	16.92

F-Test	F-Ratio
Treatment (Open vs. Traditional)	1.20
Grade (4 vs. 5 vs. 6)	0.33
Treatment x Grade	2.42

As indicated, none of the treatment comparisons are significant. There was a significant interaction between grade level and treatment in the total score analysis and the "Independent Study" subscale analysis. The adjusted means indicate that this appears to be a result of the traditional pupils in 5th grade scoring higher than their counterparts in the open school while the 4th and 6th grade pupils in the traditional school scored lower than their counterparts in the open school. This pattern is also evident in the "School Learning" and "School Climate" subscales, but the effect is not strong enough to be significant.

2. Days of Attendance

a. Grades 1, 2 and 3

Table 18 indicates no significant difference between the days of attendance of the open classroom pupils and the traditional pupils. Further, neither the grade level comparison nor the interaction effect was significant.

TABLE 18

SUMMARY DATA FOR DAYS OF ATTENDANCE
GRADES 1, 2 AND 3

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Covariate Mean	Covariate Standard Deviation	Criterion Mean	Criterion Standard Deviation	Adjusted Criterion Mean	Number of Subjects	Covariate Mean	Covariate Standard Deviation	Criterion Mean	Criterion Standard Deviation	Adjusted Criterion Mean
1	13	177.39	2.55	173.08	5.74	170.70	20	171.85	7.33	173.20	7.00	173.70
2	14	176.50	2.76	173.11	5.01	172.23	18	174.42	6.17	173.97	5.10	173.14
3	26	170.02	9.15	170.52	7.89	171.97	25	171.81	5.88	172.02	9.10	172.54

F-Tests	F-Ratio
Treatment (Open vs. Traditional)	1.47
Grade (1 vs. 2 vs. 3)	0.06
Treatment x Grade	0.34

b. Grades 4, 5 and 6

Table 19 indicates no significant difference between treatments or between grade levels and no significance of interaction in the days of attendance analysis.

TABLE 19

SUMMARY DATA FOR DAYS OF ATTENDANCE
GRADES 4, 5 AND 6

	Open Classroom School						Traditional School					
Grade	Number of Subjects	Covariate Mean	Covariate Standard Deviation	Criterion Mean	Criterion Standard Deviation	Adjusted Criterion Mean	Number of Subjects	Covariate Mean	Covariate Standard Deviation	Criterion Mean	Criterion Standard Deviation	Adjusted Criterion Mean
4	13	175.08	4.64	175.08	3.28	175.04	26	173.81	7.78	172.46	5.82	172.71
5	26	174.73	7.84	175.63	6.17	175.49	26	174.10	5.67	175.62	3.53	175.74
6	23	174.04	5.61	175.83	3.94	175.98	27	174.83	4.65	174.52	5.19	174.34

F-Tests	F-Ratio
Treatment (Open vs. Traditional)	3.02
Grade (4 vs. 5 vs. 6)	2.07
Treatment x Grade	1.17

3. Parent and Pupil Questionnaires

Table 20 and 21 give responses to selected questions from a parent questionnaire and a pupil questionnaire administered during January 1973 to the parents and pupils of the Sporting Hill School. (Only those items which address a general feeling

or attitude toward school are included in these tables; the complete questionnaires are shown in Appendix D.) The tabulation of the items in the two tables indicate that 88 per cent of the pupils in the Sporting Hill School find the school more interesting than their school of the previous year. The responses of the parents reinforce this, as 96.6 per cent of the parents indicate that their children like the school and enjoy the program.

TABLE 20

RESPONSES TO SELECTED ITEMS FROM
SPORTING HILL PARENT QUESTIONNAIRE*

Did your child ever comment that he did not want to attend school before this year?

37.6 per cent	a.	Yes
62.4 per cent	b.	No

Did your child ever comment that he did not want to attend school this school year?

16.1 per cent	a.	Yes
83.9 per cent	b.	No

My child seems to like this school and enjoys the program.

96.6 per cent	a.	Yes
9 per cent	b.	No
2.4 per cent	c.	No Response

*Tabulation based upon 122 returned questionnaires.

TABLE 21

RESPONSES TO SELECTED ITEMS FROM
SPORTING HILL PUPIL QUESTIONNAIRE*

How do you compare Sporting Hill School this year to last year's school?

88 per cent	a.	This year is more interesting
3 per cent	b.	This year is less interesting
8 per cent	c.	It is the same
	d.	No response

How often did you feel as though you didn't want to come to school last year?

26 per cent	a.	Never
41 per cent	b.	Sometimes
19 per cent	c.	Often
13 per cent	d.	Always
1 per cent	e.	No response

How often did you feel as though you didn't want to come to school this year?

70 per cent	a.	Never
20 per cent	b.	Sometimes
5 per cent	c.	Often
5 per cent	d.	Always

*The tabulation of responses was based upon completed questionnaires from 133 pupils in grades 1 through 6.

Further, both the parent and pupil responses to the items concerning desire to attend school indicate that the children's feelings toward attending school improved after the introduction of the open classroom program at Sporting Hill.

The percentage of parents who said their children did not want to attend school declined from 37.6 per cent for past years to 16.1 per cent in the first year of the program, a drop of 21.5 per cent.

The pupil responses indicate this change in feeling even more strongly. The percentage of children who indicated they never felt like not attending school increased from 27 per cent to 70 per cent. The percentage of children who often or always felt that they did not want to attend school decreased from 32 per cent to 10 per cent.

C. Academic Achievement

1. Grade 1

Table 22 lists the results of the analyses of the subscales of the Stanford Achievement Test administered in 1st grade.

TABLE 22

SUMMARY DATA FOR STANFORD ACHIEVEMENT TEST
GRADE 1

	SUBSCALE											
	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills		Arithmetic	
	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School
Number of Subjects	17	27	17	27	17	27	17	27	17	27	17	27
Mean Grade Level Score	1.90	2.33	1.67	1.96	2.65	2.61	1.73	2.33	2.15	2.92	2.28	2.00
Standard Deviation	0.61	0.62	0.36	0.61	0.94	0.78	0.63	0.73	0.94	1.28	0.45	0.43
F-Ratio	6.08*		3.29		0.03		7.15*		6.60*		4.17*	

*Significant beyond .05 level

Four of the six subscales analyzed show significant differences between the open classroom and the traditional groups. Three of these, Word Reading, Spelling and Word Study Skills, favor the traditional group while the other, Arithmetic, favors the open classroom pupils.

2. Grade 2

Table 23 indicates that of the eight subscales administered in 2nd grade, six showed no significant differences between open classroom and traditional pupils. The remaining two, Arithmetic Computation and Arithmetic Concepts, showed a significant difference favoring the open classroom pupils.

TABLE 23

SUMMARY DATA FOR STANFORD ACHIEVEMENT TEST
GRADE 2

	Word Meaning		Paragraph Meaning		Science and Social Studies Concepts		Spelling		Word Study Skills		Language		Arithmetic Computation		Arithmetic Concepts	
	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School
Number of Subjects	18	20	18	20	18	20	18	20	18	20	18	20	18	20	18	20
Covariate (IQ) Mean	103.00	112.10	103.00	112.10	103.00	112.10	103.00	112.10	103.00	112.10	103.00	112.10	103.00	112.10	103.00	112.10
Mean Grade Level Score	2.64	3.10	2.56	2.87	2.76	3.10	2.60	3.20	3.40	3.56	2.69	2.82	2.73	2.45	2.15	2.82
Adjusted Mean	2.60	2.97	2.79	2.68	2.93	2.95	2.77	3.06	3.73	3.30	2.59	2.53	2.84	2.36	3.37	2.60
F-Ratio	1.41		0.11		0.01		0.62		0.68		0.12		8.25**		8.67**	

**Significant beyond .01 level

3. Grade 3

Table 24 indicates that there was no significant difference between the open classroom and traditional pupils on any of the eight subscales administered.

TABLE 24

SUMMARY DATA FOR STANFORD ACHIEVEMENT TEST
GRADE 3

	Word Meaning		Paragraph Meaning		Science and Social Studies Concepts		Spelling		Word Study Skills		Language		Arithmetic Computation		Arithmetic Concepts	
	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School
Number of Subjects	23	26	23	26	23	26	23	26	23	26	23	26	23	26	23	26
Covariate (IQ) Mean	108.61	111.77	108.61	111.77	108.61	111.77	108.61	111.77	108.61	111.77	108.61	111.77	108.61	111.77	108.61	111.77
Mean Grade Level Score	3.77	4.09	3.86	4.24	3.91	3.92	3.72	4.03	4.43	4.59	3.65	3.93	3.15	3.67	3.62	4.28
Adjusted Mean	3.85	4.01	3.92	4.18	4.01	3.83	3.76	3.97	4.55	4.48	3.55	3.86	3.17	3.43	3.70	4.20
F-Ratio	0.35		1.01		0.32		0.39		0.03		1.50		1.97		3.16	

4. Grade 4

Table 25 shows that analysis of seven of the eight subscales administered to this grade resulted in significant differences between the open classroom

group and the traditional group. All these differences favored the traditional group.

TABLE 25

SUMMARY DATA FOR STANFORD ACHIEVEMENT TEST
GRADE 4

	Subscale															
	Word Meaning		Paragraph Meaning		Spelling		Word Study Skills		Language		Arithmetic Computation		Arithmetic Concepts		Arithmetic Applications	
	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School
Number of Subjects	23	28	23	28	23	28	23	28	23	28	23	28	23	28	23	28
Covariate (IQ) Mean	99.87	103.36	99.87	103.36	99.87	103.36	99.87	103.36	99.87	103.36	99.87	103.36	99.87	103.36	99.87	103.36
Mean Grade Level Score	4.55	4.80	4.06	4.88	4.29	5.10	3.99	4.06	3.77	4.70	3.57	4.05	3.97	5.21	3.97	4.83
Adjusted Mean	4.71	4.78	4.22	4.75	4.42	4.99	4.14	5.93	3.93	4.57	3.84	4.00	4.11	5.11	4.06	4.78
F-Ratio	0.10		4.08*		5.27*		35.63**		5.63*		6.16*		21.89**		11.04**	

*Significant beyond .05 level
**Significant beyond .01 level

5. Grade 5

Table 26 shows that one of the seven subscales analyzed for this grade has a significant difference between the open classroom and the traditional group. The open classroom pupils scored significantly higher than the traditional students on the Arithmetic Applications subscale.

TABLE 26

SUMMARY DATA FOR STANFORD ACHIEVEMENT TEST
GRADE 5

	Subscale															
	Word Meaning		Paragraph Meaning		Spelling		Language		Arithmetic Computation		Arithmetic Concepts		Arithmetic Applications			
	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School		
Number of Subjects	26	27	26	27	26	27	26	27	26	27	26	27	26	27		
Covariate (IQ) Mean	103.92	102.93	103.92	102.93	103.92	102.93	103.92	102.93	103.92	102.93	103.92	102.93	103.92	102.93		
Mean Grade Level Score	5.67	5.54	5.18	5.12	5.85	5.60	4.95	4.93	4.61	4.92	5.55	5.19	6.12	5.15		
Adjusted Mean	5.63	5.58	5.13	5.17	5.80	5.64	4.91	4.97	4.60	4.93	5.53	5.21	6.09	5.18		
F-Ratio	0.02		3.02		0.23		0.05		2.37		1.07		5.99*			

*Significant beyond .05 level

6. Grade 6

Table 27 indicates that none of the seven comparisons of subscale scores showed a significant difference between the open classroom and traditional students.

TABLE 27

SUMMARY DATA FOR STANFORD ACHIEVEMENT TEST
GRADE 6

	SUBSCALE													
	Word Meaning		Paragraph Meaning		Spelling		Language		Arithmetic Computation		Arithmetic Concepts		Arithmetic Applications	
	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School	Open Classroom School	Traditional School
Number of Subjects	26	30	26	30	26	30	26	30	26	30	26	30	26	30
Covariate (IQ) Mean	103.89	106.93	103.89	106.93	103.89	106.93	103.89	106.93	103.89	106.93	103.89	106.93	103.89	106.93
Mean Grade Level Score	6.93	6.70	5.90	6.68	6.90	6.93	5.57	6.66	5.69	5.97	6.30	6.20	6.29	6.01
Adjusted Mean	6.54	6.57	6.08	6.53	6.16	6.78	5.73	6.31	5.98	5.89	6.29	6.11	6.45	6.07
F-Ratio	0.01		1.83		1.71		2.00		1.50		0.25		0.44	

D. Teacher Attitudes

Table 28 indicates that there was no significant difference between the mean pretest score and the mean posttest score of the experimental teachers on the "Opinnionaire on Attitudes Toward Education." However, an examination of the mean scores and standard deviations of the two administrations of the instrument shows that the mean score increased by 5 points, from 206 to 212, and the standard deviation decreased from 10.86 to 4.64. This increase in the mean score, although not statistically significant, along with the decrease in the variability of the teachers' responses, suggests that the teachers, after a year of experience in the open classroom, become more uniform and slightly more positive in their beliefs concerning the value of child-centered policies and practices.

TABLE 28

EXPERIMENTAL TEACHER ATTITUDES*

	Number of Subjects	Mean Score	Standard Deviation	F-Ratio
Pretest	5	206	10.86	1.29
Posttest	5	212	4.64	

*One of the six teachers in the experimental school left during the school year. Therefore, only the scores of the five remaining teachers were included in this analysis.

Table 29 summarizes the results of the covariance analysis comparing the scores of the open classroom teachers and the traditional teachers in the study. Again, there was no significant difference between the two groups.

TABLE 29

SUMMARY DATA FOR COMPARISON OF RESULTS OF TEACHER ATTITUDE ANALYSIS*

	Open Classroom Teachers	Traditional Teachers
Number of subjects	5	5
Pretest Mean	206.00	203.6
Pretest Standard Deviation	10.86	8.93
Posttest Mean	212.00	208.6
Posttest Standard Deviation	4.64	6.91
Adjusted Posttest Mean	211.83	208.77
F-Ratio	0.62	

*Both the open classroom and traditional schools had a teacher resign during the school year. Thus, this comparison was made using the scores of the five remaining teachers in each school.

In addition to the attitude survey, the teachers in the open classroom school were asked to complete a short questionnaire dealing with their experiences during the year in the open classroom setting. (The complete response of the five teachers who returned the questionnaire are shown in Appendix E.)

An examination of these responses shows that the most frequently cited achievements were: (1) individualization of instruction, (2) team teaching, and (3) cross-age grouping. The most frequently cited problems were: (1) lack of planning time, (2) housekeeping, (3) too many visitors, and (4) lack of a quiet, less open area for easily distracted children.

E. Classroom Observations

Table 30 presents the mean observation scores for the series of six observations conducted in each of the classrooms in the two schools during the year. The two accompanying graphs are visual representations of the same data--Graph 1 being a six-point and Graph 2 a three-point chart of the observational data.

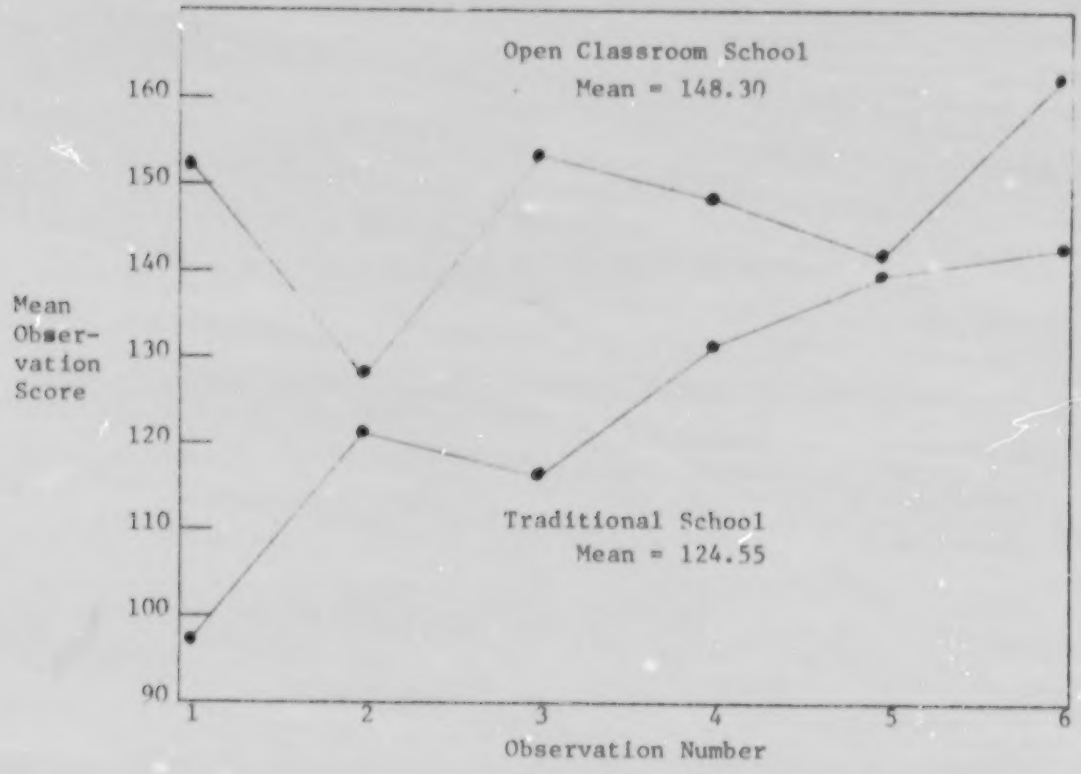
TABLE 30

SUMMARY OF ANALYSIS OF CLASSROOM OBSERVATION DATA

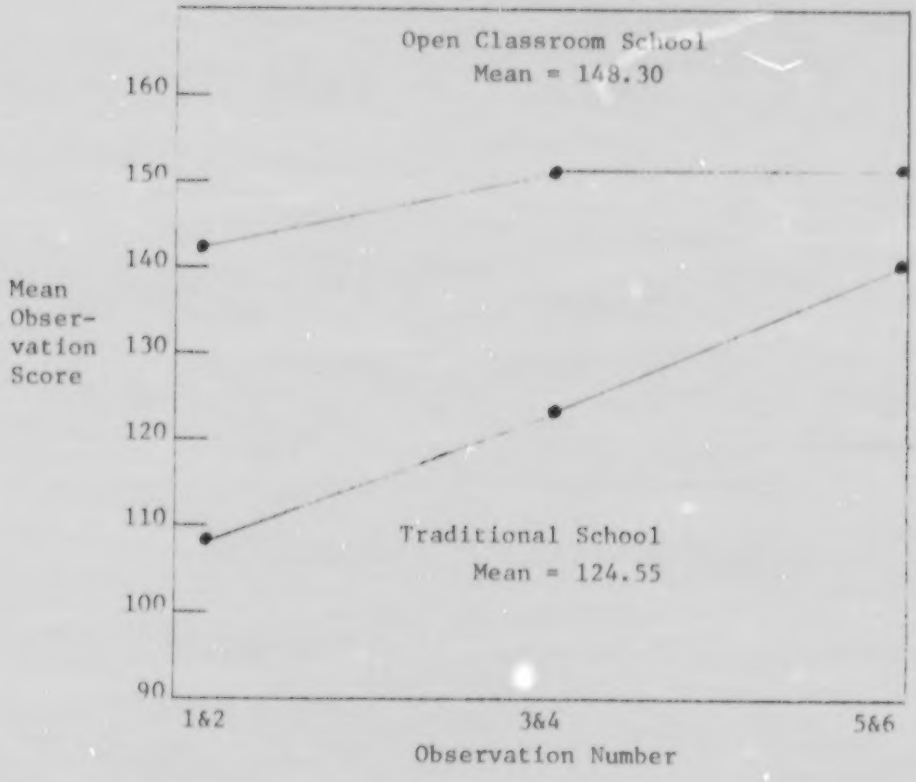
Observation Number	1	2	3	4	5	6	Overall Mean	F-Ratio For Repeated Measures ANOVA
Traditional School	98.33	120.33	115.83	131.00	139.50	142.33	124.55	28.69**
Open Classroom School	157.00	128.16	153.66	148.16	140.83	160.00	148.30	6.59*

*Significant beyond .05 level
**Significant beyond .01 level

GRAPH 1



GRAPH 2



As is evident, both instructional programs experienced changes in their degree of openness during the year. The repeated measures analysis of variance performed on the observational data (F-ratios are shown in Table 30) show that these changes were statistically significant in both schools.

The series of means and the two graphs indicate that in the traditional school the change progressed rather smoothly and gradually toward openness. The open classroom school also moved toward openness, but in a more disjointed way, with rather abrupt up and down shifts from one observation to another.

William Donny, who performed the series of observations in both schools, describes them in the following way:

> Observations of the experimental and control schools throughout the year indicated that the schools varied from observation to observation in their degree of methodological openness or conventionality.
>
> The experimental school chose to launch its new program during the first days of school with enthusiastic efforts to operate successfully the rather free, fluid, individualized open processes. Added to the pressures of this ambitious beginning was the constant flow of visitors that were hosted, and the considerable number of after school work hours needed to sustain this new demanding multiprocess educational method. During intervals when new learning stations and procedures were being installed, the open school faculty reverted at times to simpler large group conventional methods and were rated accordingly. Large variations in degree of openness occurred from period to period during the first year although an overall increase did occur.
>
> Perhaps due to publicity released about the experimental school as well as the physical proximity of the two, the control school increasingly adopted techniques of openness during most of the year, but within the framework of their established practices. The result was a fairly consistent trend to greater openness with time but leveling off toward the last. The differences between the two groups would have been greater if the conventional school had not changed markedly in degree of openness contrary to what is expected of a true control.
>
> As a result of these trends the position of the two schools became at times very similar with regard to openness as measured by the observation instrument. However, near the end of the year, while the control school turned back to more conventional educational process, the experimental school appeared to have found the degree of openness suited to its

needs and began to operate the new program with confidence and aplomb. Continued observations being carried out in the succeeding year have tended to clarify further this situation. Indeed observations obtained to date indicate the open school has retained its status with regard to degree of openness, while the conventional school has reverted to a more conventional methodological position.

The above described movement of the comparison school toward openness and the fluctuation in the degree of openness of the experimental school mean that, not surprisingly, the ideal comparison between strictly and continually delineated "traditional" and "open" instructional programs was not possible. It suggests that the absence of any consistent difference between the students of the two schools might be at least partially explained as resulting from the fact that the two instructional programs were not really very different. However, although the difference between the two programs was not as great as might have been desired, that difference was significant.

An analysis of variance comparing the two schools on the basis of the means of the six observations for individual classrooms produced an F-Ratio of 19.26, which is significant beyond the .01 level. (ANOVA source table is shown in Appendix B.) So, even though the decreasing difference between the two instructional programs might have diluted any differential effect which instruction program "openness" might have exerted upon students, the fact remains that the two programs were rated as being significantly different on the instrument which quantified this variable. Because of this, it does not seem probable that the absence of student differences between the two schools can be totally attributed to program similarity.

IV. CONCLUSIONS AND SUMMARY

Conclusions

As stated in Chapter 1, the purpose of this study was to gather evidence related to five basic questions. This chapter restates the questions and briefly summarizes the results which bear upon those questions. It is emphasized that these questions and results only apply to this situation. They should not be interpreted as referring to any other open classroom program.

Question 1: Is there a significant difference between the self-concept of children involved in an open classroom instructional program and those involved in a traditional program?

The results of the self-concept segment of the study indicate that the answer to question 1 is no.

The analysis for grades 1, 2 and 3 indicates no significant differences whatsoever. The analysis for grades 4, 5 and 6 shows no significant treatment effects, but a significant grade level difference and a significant interaction between the grade level and treatment variables.

These results, principally because of the significant interaction, are difficult to elaborate upon. It could be suggested that the interaction was a result of teacher differences, differing degrees of pupil maturity, or possibly a testing anomaly, but this would be speculation. It appears the only definite thing that can be said is that, based upon these results, neither the traditional nor the open classroom instructional program differentially influenced the self-concepts of the pupils involved in any consistent pattern.

Question 2: Is there a significant difference between the attitudes toward school of children involved in an open classroom instructional program and those involved in a traditional program?

The results of the first year of this study indicate that the answer to the attitude toward school question cannot be categorically expressed.

The data collected with the "Faces" inventory suggests that there was no appreciable difference between the two programs in relation to their impact upon the students' attitudes toward school. In the 1st grade analysis, there were no statistically significant differences detected. The 2nd and 3rd grade analysis resulted in a statistically significant difference favoring the open classroom program, but the difference could have been due to a change of teacher during the year. The results of the 4th, 5th and 6th grade analysis show no significant differences between the two programs.

The days of attendance analysis for both grades 1-3 and 4-6 revealed no significant differences between the two programs in relation to their effect upon school attendance.

The data collected with the parent and pupil questionnaires at the

Sporting Hill School indicates an improvement in attitude toward school after the implementation of the open classroom program. A large majority of the students felt that the new program was more interesting than the previous one and a large number of students indicated a positive change in their desire to attend school. Parent responses on their questionnaires reinforced these student responses.

Thus, the two comparative, more objective measures, the "Faces" inventory and days of attendance, do not indicate that either instructional program differentially influence the attitude toward school of the students involved, while the questionnaires administered only to the Sporting Hill students and parents indicate a positive change in attitude toward school.

Question 3: Is there a significant difference between the level of achievement in basic skills of children involved in an open classroom instructional program and those involved in a traditional instructional program?

The analysis of the achievement data indicates that the answer to the basic skills question is also somewhat hazy. Of the 44 separate subscale analyses which were performed in grades 1 to 6, only 14 resulted in significant differences between the open classroom and traditional groups. Of these 14, 10 were in the direction of the traditional program and 4 favored the open classroom program. However, seven of the 10 favoring the traditional program were in 4th grade so that except for this grade, the two programs were essentially equivalent in their effect upon attainment of basic skills. In 4th grade, the decided superiority of the traditional students on the Stanford Achievement Test might be a result of a teacher or testing effect rather than as a program effect. Overall, then, more evidence is needed before it is concluded that a significant differential effect upon achievement of basic skills can be attributed to either the traditional program or the open classroom program.

Question 4: Does teaching in an open classroom cause a change in teacher attitudes toward child-centered policies and practices in education?

The results of the analysis of the teacher attitude opinionnaire indicate that no significant change in the attitudes of the open classroom teachers occurred during the first year of the study. However, a nonsignificant increase in the mean score of these teachers combined with a decrease in the variability of their responses suggests that their attitudes did change in a positive manner.

These results at least suggest that experience with open classroom procedures did not change teacher attitudes toward the value of policies and practices which are basic components of the "open education" philosophy.

Question 5: What are the extent of the changes in classroom environment and practices which result from continued experience with the open

classroom?

Analysis of the classroom observation data indicates that there were statistically significant changes in the classroom environment and practices during the course of the year. The observation rating scale results, teachers' comments, and observer's reactions indicate that, as would be expected during the first year of a rather significant changeover, there were fluctuations in practices as the experimental teachers searched for the most appropriate and successful mode of operation. Overall, though, there was an increase in the degree of openness from the beginning of the year to the end of the year which can be interpreted as indicating a satisfaction with the success of the open classroom instructional program.

Summary

The general conclusion that emerges from the analysis of the first year results is that there was little measurable difference between the two instructional programs in terms of their effect upon the attitudes toward school, self-concepts and achievement of basic skills of the students involved. Although there were isolated differences in these three areas, there were no observable patterns or trends which would indicate any consistent, differential effect attributable to either of the two programs.

This result is not surprising. Changing from a self-contained setting to an open setting is a major undertaking which requires a significant amount of "shakedown" time during which, basically through trial and error, the most effective instructional strategies can be evolved. The classroom observation data indicates that this process occurred during much of the year in the Sporting Hill school and, given these circumstances, it appears to be unrealistic to expect major changes in students after only one year.

Basically for this reason, this study was designed to be a two-year evaluation. It is expected that a comparison of the same two schools after two years will give a more accurate picture of the relative effectiveness of the open classroom instructional program.

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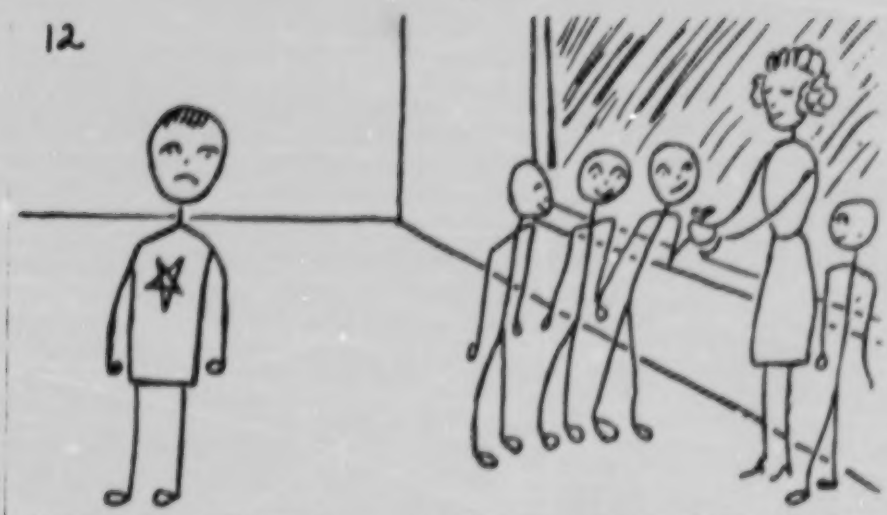
APPENDIX A-1

Sample Items from Pictorial Self-Concept Scale

2.

12



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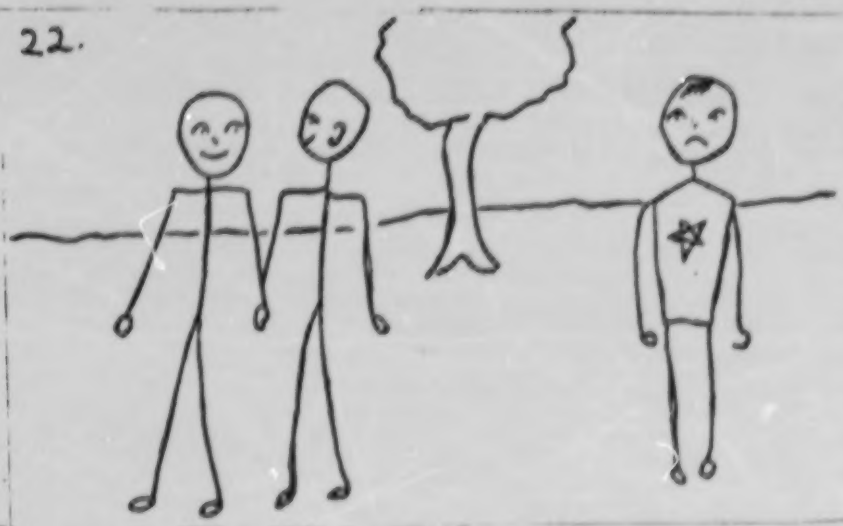


13.

43.

APPENDIX A-2

The Piers-Harris Children's Self-Concept Scale

Here are a set of statements. Some of them are true of you and so you will circle the yes. Some are not true of you and so you will circle the no. Answer every question even if some are hard to decide, but do not circle both yes and no. Remember, circle the yes if the statement is generally like you, or circle the no if the statement is generally not like you. There are no right or wrong answers. Only you can tell us how you feel about yourself, so we hope you will mark the way you really feel inside.

1. My classmates make fun of me . . . . . yes no
2. I am a happy person . . . . . yes no
3. It is hard for me to make friends . . . . . yes no
4. I am often sad . . . . . yes no
5. I am smart . . . . . yes no
6. I am shy . . . . . yes no
7. I get nervous when the teacher calls on me . . . . . yes no
8. My looks bother me . . . . . yes no
9. When I grow up, I will be an important person . . . . . yes no
10. I get worried when we have tests in school . . . . . yes no
11. I am unpopular . . . . . yes no
12. I am well behaved in school . . . . . yes no
13. It is usually my fault when something goes wrong . . . . . yes no
14. I cause trouble to my family . . . . . yes no
15. I am strong . . . . . yes no
16. I have good ideas . . . . . yes no
17. I am an important member of my family . . . . . yes no
18. I usually want my own way . . . . . yes no
19. I am good at making things with my hands . . . . . yes no
20. I give up easily . . . . . yes no
21. I am good in my school work . . . . . yes no
22. I do many bad things . . . . . yes no
23. I can draw well . . . . . yes no
24. I am good in music . . . . . yes no
25. I behave badly at home . . . . . yes no
26. I am slow in finishing my school work . . . . . yes no
27. I am an important member of my class . . . . . yes no
28. I am nervous . . . . . yes no
29. I have pretty eyes . . . . . yes no
30. I can give a good report in front of the class . . . . . yes no
31. In school I am a dreamer . . . . . yes no
32. I pick on my brother(s) and sister(s) . . . . . yes no
33. My friends like my ideas . . . . . yes no
34. I often get into trouble . . . . . yes no
35. I am obedient at home . . . . . yes no
36. I am lucky . . . . . yes no
37. I worry a lot . . . . . yes no
38. My parents expect too much of me . . . . . yes no
39. I like being the way I am . . . . . yes no
40. I feel left out of things . . . . . yes no

APPENDIX A-2 (Continued)

41. I have nice hair . . . . . yes no
42. I often volunteer in school . . . . . yes no
43. I wish I were different . . . . . yes no
44. I sleep well at night . . . . . yes no
45. I hate school . . . . . yes no
46. I am among the last to be chosen for games . . . . . yes no
47. I am sick a lot . . . . . yes no
48. I am often mean to other people . . . . . yes no
49. My classmates in school think I have good ideas . . . . . yes no
50. I am unhappy . . . . . yes no
51. I have many friends . . . . . yes no
52. I am cheerful . . . . . yes no
53. I am dumb about most things . . . . . yes no
54. I am good looking . . . . . yes no
55. I have lots of pep . . . . . yes no
56. I get into a lot of fights . . . . . yes no
57. I am popular with boys . . . . . yes no
58. People pick on me . . . . . yes no
59. My family is disappointed in me . . . . . yes no
60. I have a pleasant face . . . . . yes no
61. When I try to make something, everything seems to go wrong . yes no
62. I am picked on at home . . . . . yes no
63. I am a leader in games and sports . . . . . yes no
64. I am clumsy . . . . . yes no
65. In games and sports, I watch instead of play . . . . . yes no
66. I forget what I learn . . . . . yes no
67. I am easy to get along with . . . . . yes no
68. I lose my temper easily . . . . . yes no
69. I am popular with girls . . . . . yes no
70. I am a good reader . . . . . yes no
71. I would rather work alone than with a group . . . . . yes no
72. I like my brother (sister) . . . . . yes no
73. I have a good figure . . . . . yes no
74. I am often afraid . . . . . yes no
75. I am always dropping or breaking things . . . . . yes no
76. I can be trusted . . . . . yes no
77. I am different from other people . . . . . yes no
78. I think bad thoughts . . . . . yes no
79. I cry easily . . . . . yes no
80. I am a good person . . . . . yes no

APPENDIX A-3

"FACES" Inventory

Age _____

Grade _____

ID Code _____

Name _____

School _____

Date _____

1. This is how I feel when I come to school.

2. I feel like this when the teacher tells me to do something all by myself without any help.

3. This is how I would feel if I could go to school for the rest of my life.

4. I feel like this when someone does not follow the rules.

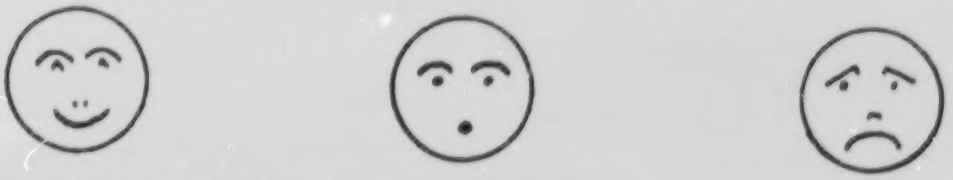
5. I feel like this when I work alone.

6. I feel like this when I have a lot of school work to do.

7. I feel like this about going to summer school.

8. I feel like this when I work on a project by myself.

9. This is how I feel about going back to school after a vacation.



10. This is how I feel when I talk to my teachers.

11. I feel like this about studying alone.

12. This is how I feel on days when I can't go to school.

13. I feel this way about teachers.

14. I feel this way about reading a book by myself.

15. This is how I would feel if we could have school on Saturday, too.

16. This is how I feel about school rules.

17. I feel this way when the teacher asks me questions.

18. This is how I feel when it's time to go home from school.

19. I feel like this when I go to the media center (library).

20. This is how I feel about my school building.

APPENDIX A-4

OPINIONNAIRE ON ATTITUDES TOWARD EDUCATION

Below are a number of statements about which teachers may have different opinions. Please indicate what your opinion of each statement is by circling the appropriate number after each statement.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. Boys and girls who are delinquent are, when all is said and done, basically good.	1	2	3	4	5
2. If boys and girls are to do an adequate job of learning in school, their needs for love must be met.	1	2	3	4	5
3. It is appropriate for teachers to require an additional assignment from a pupil who misbehaves in class	1	2	3	4	5
4. How a student feels about what he learns is as important as what he learns	1	2	3	4	5
5. The way to handle a pupil who tells lies is to threaten to punish him.	1	2	3	4	5
6. The high school pupil who is not interested in having dates should be commended.	1	2	3	4	5
7. Education has failed unless it has helped boys and girls to understand and to express their own feelings and experiences.	1	2	3	4	5
8. You should tell a child who masturbates that it leads to ruined health.	1	2	3	4	5
9. The classroom experiences that are the most helpful to boys and girls are the ones wherein they can express themselves creatively.	1	2	3	4	5
10. All children should be encouraged to aim at the highest academic goals.	1	2	3	4	5
11. The child who bites his nails should be shamed. . .	1	2	3	4	5
12. Children outgrow early emotional experiences as they do shoes and clothes	1	2	3	4	5
13. What boys and girls become as adults is more closely related to the experiences they have with each other than it is to mastery of specific subject matter.	1	2	3	4	5

Appendix A-4 (Continued)

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
14.	It is more important for students to learn to work together cooperatively than it is for them to learn how to compete.	1	2	3	4	5
15.	Some pupils are just naturally stubborn	1	2	3	4	5
16.	Students should be permitted to disagree with the teacher	1	2	3	4	5
17.	It is better for a girl to be shy and timid than "boy crazy".	1	2	3	4	5
18.	Boys and girls should learn that most of life's problems have several possible solutions and not just one "correct" one.	1	2	3	4	5
19.	The first signs of delinquency in a pupil should be received by a tightening of discipline and more restrictions	1	2	3	4	5
20.	The newer methods of education tend to standardize children's behavior	1	2	3	4	5
21.	Most boys and girls who present extreme cases of "problem behavior" are doing the best they can to get along with other people	1	2	3	4	5
22.	An activity to be educationally valuable should train reasoning and memory in general	1	2	3	4	5
23.	It is more important for a child to have faith in himself than it is for him to be obedient. . . .	1	2	3	4	5
24.	Being grouped according to ability damages the self-confidence of many boys and girls.	1	2	3	4	5
25.	Criticism of children by teachers is more effective for obtaining the desired behavior than criticism of children by others of their own age	1	2	3	4	5
26.	All questions a student asks should be recognized and considered	1	2	3	4	5
27.	The pupil who isn't making good grades should be told to study harder	1	2	3	4	5
28.	Children should not be permitted to talk without the permission of the teacher	1	2	3	4	5

Appendix A-4 (Continued)

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
29.	A student who will not do his work should be helped in every way possible.	1	2	3	4	5
30.	Boys and girls in the elementary school should be promoted regardless of whether they have completed the work for their grade or not	1	2	3	4	5
31.	The teacher should lower grades for misconduct in class.	1	2	3	4	5
32.	A teacher should permit a great deal of latitude in the way he permits boys and girls to address him.	1	2	3	4	5
33.	It is a good idea to tell a pupil that he can succeed in any type of work if he works hard. . . .	1	2	3	4	5
34.	Students will tolerate errors and even occasional injustices in a teacher who, they feel, likes and understands them.	1	2	3	4	5
35.	A teacher should accept the deficiencies and shortcomings of a student, as well as his good points. .	1	2	3	4	5
36.	Each time a pupil lies his punishment should be increased	1	2	3	4	5
37.	Boys and girls can learn proper discipline only if they are given sufficient freedom.	1	2	3	4	5
38.	If a teacher keeps school conditions exactly the same and gives all pupils an equal opportunity to respond, he has done all he can do	1	2	3	4	5
39.	If a child constantly performs for attention, the teacher should see to it that he gets no attention.	1	2	3	4	5
40.	Dishonesty is a more serious personality characteristic than unsocialness	1	2	3	4	5
41.	A great deal of misbehavior problem behavior results from fear and guilt	1	2	3	4	5
42.	The teacher's first responsibility in all cases of misconduct is to locate and punish the offender.	1	2	3	4	5
43.	It is better for boys and girls to talk about the things that bother them than to try to forget them.	1	2	3	4	5
44.	Most pupils need some of the natural meanness taken out of them	1	2	3	4	5

Appendix A-4 (Continued)

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
45. It is more important for boys and girls to be liked and accepted by their friends than it is for them to get along with their teachers.	1	2	3	4	5
46. Teachers should answer children's questions about sex frankly and, if possible, without show of embarrassment	1	2	3	4	5
47. When a pupil obeys all the rules of the school, one can be sure he is developing moral character. . . .	1	2	3	4	5
48. When a teacher is told something in confidence by a child, he should keep the matter just as confidential as though it were entrusted to him by an adult	1	2	3	4	5
49. Since a person memorizes best during childhood, that period should be regarded as a time to store up facts for later use.	1	2	3	4	5
50. Students should play a very active part in formulating the rules for the classroom and the school.	1	2	3	4	5

APPENDIX A-5

ID_____

1._____

2._____

3._____

_____

School_____

Classroom_____

Teacher_____

Observer_____

OBSERVATION RATING SCALE

	no evidence	weak infrequent	moderate occasional	strong frequent evidence
1. Texts and materials are supplied in class sets so that all children may have their own.	1	2	3	4
2. Each child has a space for his personal storage and the major part of the classroom is organized for common use.	1	2	3	4
3. Materials are kept out of the way until they are distributed or used under the teacher's direction.	1	2	3	4
4. Many different activities go on simultaneously.	1	2	3	4
5. Children are expected to do their own work without getting help from other children.	1	2	3	4
6. Manipulative materials are supplied in great diversity and range, with little replication.	1	2	3	4
7. Day is divided in large blocks of time within which children, with the teacher's help, determine their own routine.	1	2	3	4
8. Children work individually and in small groups at various activities.	1	2	3	4
9. Books are supplied in diversity and profusion (including reference, children's literature).	1	2	3	4
10. Children are not supposed to move about the room without asking permission.	1	2	3	4
11. Desks are arranged so that every child can see the blackboard or teacher from his desk.	1	2	3	4
12. The environment includes materials developed by the teacher.	1	2	3	4

Appendix A-5 (Continued)

	no evidence	weak infrequent	moderate occasional	strong frequent evidence
13. Common environmental materials are provided.	1	2	3	4
14. Children may voluntarily make use of other areas of the building and school yard as part of their school time.	1	2	3	4
15. The program includes use of the neighborhood.	1	2	3	4
16. Children use "books" written by their classmates as part of their reading and reference materials.	1	2	3	4
17. Teacher prefers that children not talk when they are supposed to be working.	1	2	3	4
18. Children voluntarily group and regroup themselves.	1	2	3	4
19. The environment includes materials developed or supplied by the children.	1	2	3	4
20. Teacher plans and schedules the children's activities through the day.	1	2	3	4
21. Teacher makes sure children use materials only as instructed.	1	2	3	4
22. Teacher groups children for lessons directed at specific needs.	1	2	3	4
23. Children work directly with manipulative materials.	1	2	3	4
24. Materials are readily accessible to children.	1	2	3	4
25. Teacher promotes a purposeful atmosphere by expecting and enabling children to use time productively and to value their work and learning.	1	2	3	4
26. Teacher uses test results to group children for reading and/or math.	1	2	3	4
27. Children expect the teacher to correct all their work.	1	2	3	4
28. Teacher bases her instruction on each individual child and his interaction with materials and equipment.	1	2	3	4

Appendix A-5 (Continued)

	no evidence	weak infrequent	moderate occasional	strong frequent evidence
29. Teacher gives children tests to find out what they know.	1	2	3	4
30. The emotional climate is warm and accepting.	1	2	3	4
31. The work children do is divided into subject matter areas.	1	2	3	4
32. The teacher's lessons and assignments are given to the class as a whole.	1	2	3	4
33. To obtain diagnostic information, the teacher closely observes the specific work or concern of a child and asks immediate, experience-based questions.	1	2	3	4
34. Teacher bases her instruction on curriculum guides or text books for the grade level she teaches.	1	2	3	4
35. Teacher keeps notes and writes individual histories of each child's intellectual, emotional, physical development.	1	2	3	4
36. Teacher has children for a period of just one year.	1	2	3	4
37. The class operates within clear guidelines made explicit.	1	2	3	4
38. Teacher takes care of dealing with conflicts and disruptive behavior without involving the group.	1	2	3	4
39. Children's activities, products, and ideas are reflected abundantly about the classroom.	1	2	3	4
40. The teacher is in charge.	1	2	3	4
41. Before suggesting any extension or redirection of activity, teacher gives diagnostic attention to the particular child and his particular activity.	1	2	3	4
42. The children spontaneously look at and discuss each other's work.	1	2	3	4
43. Teacher uses tests to evaluate children and rate them in comparison to their peers.	1	2	3	4
44. Teacher uses the assistance of someone in a supportive, advisory capacity.	1	2	3	4

Appendix A-5 (Continued)

	no evidence	weak infrequent	moderate occasional	strong frequent evidence
45. Teacher tries to keep all children within her sight so that she can make sure they are doing what they are supposed to do.	1	2	3	4
46. Teacher has helpful colleagues with whom she discusses teaching.	1	2	3	4
47. Teacher keeps a collection of each child's work for use in evaluating his development.	1	2	3	4
48. Teacher views evaluation as information to guide her instruction and provisioning for the classroom.	1	2	3	4
49. Academic achievement is the teacher's top priority for the children.	1	2	3	4
50. Children are deeply involved in what they are doing.	1	2	3	4

APPENDIX B

SOURCE TABLES FOR STATISTICAL ANALYSES

ANALYSIS OF COVARIANCE FOR
PICTORIAL SELF-CONCEPT SCALE

Source	SS	MS	DF	F
Treatment	4.19	4.19	1	0.12
Grade	205.94	102.97	2	2.88
Treatment x Grade	62.06	31.03	2	0.87
Within	3723.69	35.81	104	
Total	3995.88		109	

ANALYSIS OF COVARIANCE FOR TOTAL SCORE OF
PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE

Source	SS	MS	DF	F
Treatment	67.88	67.88	1	0.92
Grade	596.31	298.16	2	4.02
Treatment x Grade	1213.19	606.60	2	8.19
Within	10376.13	74.12	140	
Total	12253.51		145	

ANALYSIS OF COVARIANCE FOR "BEHAVIOR" SUBSCALE OF
PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE

Source	SS	MS	DF	F
Treatment	3.69	3.69	1	0.58
Grade	19.29	9.65	2	1.50
Treatment x Grade	57.18	28.59	2	4.45
Within	899.10	6.42	140	
Total	979.26		145	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "INTELLECTUAL AND SCHOOL STATUS" SUBSCALE OF PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE

Source	SS	MS	DF	F
Treatment	1.83	1.83	1	0.20
Grade	44.85	22.43	2	2.41
Treatment x Grade	160.48	80.24	2	8.61*
Within	1305.39	9.32	140	
Total	1512.55		145	

ANALYSIS OF COVARIANCE FOR "PHYSICAL APPEARANCE AND ATTRIBUTES" SUBSCALE OF PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE

Source	SS	MS	DF	F
Treatment	13.46	13.46	1	2.32
Grade	57.41	28.71	2	4.95**
Treatment x Grade	61.95	30.98	2	5.34**
Within	812.37	5.80	140	
Total	945.19		145	

ANALYSIS OF COVARIANCE FOR "ANXIETY" SUBSCALE OF PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE

Source	SS	MS	DF	F
Treatment	0.22	0.22	1	0.06
Grade	0.12	0.06	2	0.02
Treatment x Grade	36.19	18.10	2	4.96**
Within	510.97	3.65	140	
Total	547.50		145	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "POPULARITY" SUBSCALE
OF PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE

Source	SS	MS	DF	F
Treatment	1.88	1.88	1	0.33
Grade	39.67	19.84	2	3.45*
Treatment x Grade	10.32	5.16	2	0.90
Within	805.69	5.76	140	
Total	857.56		145	

ANALYSIS OF COVARIANCE FOR "HAPPINESS AND SATISFACTION"
SUBSCALE OF PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE

Source	SS	MS	DF	F
Treatment	0.03	0.03	1	0.01
Grade	12.15	6.08	2	2.35
Treatment x Grade	18.97	9.43	2	3.67*
Within	361.99	2.59	140	
Total	393.14		145	

APPENDIX B
(continued)

ANALYSIS OF VARIANCE FOR TOTAL
SCORE OF "FACES" INVENTORY
GRADE 1

Source	SS	MS	DF	F
Treatment	6.38	6.38	1	0.21
Error	1272.42	30.30	42	
Total	1278.80		43	

ANALYSIS OF VARIANCE FOR "SCHOOL LEARNING"
SUBSCALE OF "FACES" INVENTORY
GRADE 1

Source	SS	MS	DF	F
Treatment	3.72	3.72	1	0.35
Error	446.71	10.64	42	
Total	450.43		43	

ANALYSIS OF VARIANCE FOR "INDEPENDENT STUDY"
SUBSCALE OF "FACES" INVENTORY
GRADE 1

Source	SS	MS	DF	F
Treatment	3.04	3.04	1	0.42
Error	306.60	7.30	42	
Total	309.64		43	

APPENDIX B
(continued)

ANALYSIS OF VARIANCE FOR "SCHOOL CLIMATE"
SUBSCALE OF "FACES" INVENTORY
GRADE 1

Source	SS	MS	DF	F
Treatment	1.32	1.32	1	0.24
Error	22/.32	5.41	42	
Total	228.64		43	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR TOTAL SCORE
OF "FACES" INVENTORY
GRADES 2 AND 3

Source	SS	MS	DF	F
Treatment	592.50	592.50	1	15.80**
Grade	530.44	530.44	1	14.14**
Treatment x Grade	103.56	103.56	1	2.76
Within	2812.75	37.50	75	
Total	4093.25		78	

ANALYSIS OF COVARIANCE FOR "SCHOOL LEARNING"
SUBSCALE OF "FACES" INVENTORY
GRADES 2 AND 3

Source	SS	MS	DF	F
Treatment	97.94	97.94	1	8.44**
Grade	27.76	27.76	1	2.39
Treatment x Grade	22.21	22.21	1	1.92
Within	869.88	11.60	75	
Total	1017.79		78	

ANALYSIS OF COVARIANCE FOR "INDEPENDENT STUDY"
SUBSCALE OF "FACES" INVENTORY
GRADES 2 AND 3

Source	SS	MS	DF	F
Treatment	1.74	1.74	1	0.37
Grade	39.85	39.85	1	8.55**
Treatment x Grade	0.18	0.18	1	0.04
Within	349.78	4.66	75	
Total	391.55		78	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "SCHOOL CLIMATE"
SUBSCALE OF "FACES" INVENTORY
GRADES 2 AND 3

Source	SS	MS	DF	F
Treatment	93.75	93.75	1	12.89**
Grade	77.72	77.72	1	10.68**
Treatment x Grade	0.73	0.73	1	0.10
Within	545.71	7.28	75	
Total	717.91		78	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR TOTAL SCORE
OF "FACES" INVENTORY
GRADES 4, 5 AND 6

Source	SS	MS	DF	F
Treatment	1.69	1.69	1	0.09
Grade	2.75	1.38	2	0.07
Treatment x Grade	231.63	115.82	2	5.82**
Within	2707.81	19.91	136	
Total	2943.88		141	

ANALYSIS OF COVARIANCE FOR "SCHOOL LEARNING"
SUBSCALE OF "FACES" INVENTORY
GRADES 4, 5 AND 6

Source	SS	MS	DF	F
Treatment	5.97	5.97	1	0.99
Grade	20.59	10.30	2	1.71
Treatment x Grade	28.66	14.33	2	2.39
Within	816.94	6.01	136	
Total	872.16		141	

ANALYSIS OF COVARIANCE FOR "INDEPENDENT STUDY"
SUBSCALE OF "FACES" INVENTORY
GRADES 4, 5 AND 6

Source	SS	MS	DF	F
Treatment	7.90	7.90	1	2.98
Grade	10.57	5.29	2	2.00
Treatment x Grade	28.20	14.10	2	5.35**
Within	360.25	2.65	136	
Total	406.92		141	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "SCHOOL CLIMATE"
SUBSCALE OF "FACES" INVENTORY
GRADES 4, 5 AND 6

Source	SS	MS	DF	F
Treatment	4.94	4.94	1	1.20
Grade	2.72	1.36	2	0.33
Treatment x Grade	19.89	8.95	2	2.42
Within	559.90	4.12	136	
TOTAL	587.45		141	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR DAYS OF ATTENDANCE
GRADES 1, 2 AND 3

Source	SS	MS	DF	F
Treatment	60.00	60.00	1	1.47
Grade	5.00	2.50	2	0.06
Treatment x Grade	28.00	14.00	2	0.34
Within	4423.00	40.95	108	
Total	4516.00		113	

ANALYSIS OF COVARIANCE FOR DAYS OF ATTENDANCE
GRADES 4, 5 AND 6

Source	SS	MS	DF	F
Treatment	54.00	54.00	1	3.02
Grade	74.00	37.00	2	2.07
Treatment x Grade	42.00	21.00	2	1.17
Within	2468.00	17.88	138	
Total	2638.00		143	

APPENDIX B
(continued)

ANALYSIS OF VARIANCE FOR "WORD READING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 1

Source	SS	MS	DF	F
Treatment	1.83	1.83	1	6.08*
Error	12.62	0.30	42	
Total	14.45		43	

ANALYSIS OF VARIANCE FOR "PARAGRAPH MEANING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 1

Source	SS	MS	DF	F
Treatment	0.91	0.91	1	3.29
Error	11.54	0.28	42	
Total	12.45		43	

ANALYSIS OF VARIANCE FOR "VOCABULARY" SUBSCALE
OF STANFORD ACHIEVEMENT TEST
GRADE 1

Source	SS	MS	DF	F
Treatment	0.02	0.02	1	0.03
Error	30.22	0.72	42	
Total	30.24		43	

APPENDIX B
(continued)

ANALYSIS OF VARIANCE FOR "SPELLING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 1

Source	SS	MS	DF	F
Treatment	3.47	3.47	1	7.15*
Error	20.38	0.49	42	
Total	23.85		43	

ANALYSIS OF VARIANCE FOR "WORD STUDY SKILLS"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 1

Source	SS	MS	DF	F
Treatment	6.21	6.21	1	4.60*
Error	56.64	1.35	42	
Total	62.85		43	

ANALYSIS OF VARIANCE FOR "ARITHMETIC"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 1

Source	SS	MS	DF	F
Treatment	0.81	0.81	1	4.17*
Error	8.15	0.19	42	
Total	8.96		43	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "WORD MEANING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 2

Source	SS	MS	DF	F
Treatment	1.06	1.06	1	1.41
Error	24.75	0.75	33	
Total	25.81		34	

ANALYSIS OF COVARIANCE FOR "PARAGRAPH MEANING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 2

Source	SS	MS	DF	F
Treatment	0.09	0.09	1	0.11
Error	26.75	0.81	33	
Total	26.84		34	

ANALYSIS OF COVARIANCE FOR "SCIENCE AND SOCIAL
STUDIES CONCEPTS" SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 2

Source	SS	MS	DF	F
Treatment	0.00	0.00	1	0.00
Error	13.84	0.42	33	
Total	13.84		34	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "SPELLING" SUBSCALE
OF STANFORD ACHIEVEMENT TEST
GRADE 2

Source	SS	MS	DF	F
Treatment	0.68	0.68	1	0.62
Error	36.28	1.10	33	
Total	36.96		34	

ANALYSIS OF COVARIANCE FOR "WORD STUDY SKILLS"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 2

Source	SS	MS	DF	F
Treatment	1.47	1.47	1	0.88
Error	55.23	1.67	33	
Total	56.70		34	

ANALYSIS OF COVARIANCE FOR "LANGUAGE" SUBSCALE
OF STANFORD ACHIEVEMENT TEST
GRADE 2

Source	SS	MS	DF	F
Treatment	0.03	0.03	1	0.12
Error	9.06	0.27	33	
Total	9.09		34	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "ARITHMETIC COMPUTATION"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 2

Source	SS	MS	DF	F
Treatment	1.81	1.81	1	8.23**
Error	7.26	0.22	33	
Total	9.07		34	

ANALYSIS OF COVARIANCE FOR "ARITHMETIC CONCEPTS"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 2

Source	SS	MS	DF	F
Treatment	4.84	4.84	1	8.47**
Error	18.87	0.57	33	
Total	23.71		34	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "WORD MEANING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 3

Source	SS	MS	DF	F
Treatment	0.31	0.31	1	0.35
Error	40.62	0.88	46	
Total	40.93		47	

ANALYSIS OF COVARIANCE FOR "PARAGRAPH MEANING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 3

Source	SS	MS	DF	F
Treatment	0.81	0.81	1	1.01
Error	36.84	0.80	46	
Total	37.65		47	

ANALYSIS OF COVARIANCE FOR "SCIENCE AND SOCIAL
STUDIES CONCEPTS" SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 3

Source	SS	MS	DF	F
Treatment	0.36	0.36	1	0.39
Error	51.05	1.11	46	
Total	51.41		47	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "SPELLING" SUBSCALE
OF STANFORD ACHIEVEMENT TEST
GRADE 3

Source	SS	MS	DF	F
Treatment	0.44	0.44	1	0.39
Error	52.22	1.14	46	
Total	52.66		47	

ANALYSIS OF COVARIANCE FOR "WORD STUDY SKILLS"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 3

Source	SS	MS	DF	F
Treatment	0.07	0.07	1	0.03
Error	95.17	2.07	46	
Total	95.24		47	

ANALYSIS OF COVARIANCE FOR "LANGUAGE"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 3

Source	SS	MS	DF	F
Treatment	1.23	1.23	1	1.50
Error	37.61	0.82	46	
Total	38.84		47	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "ARITHMETIC COMPUTATION"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 3

Source	SS	MS	DF	F
Treatment	0.84	0.84	1	1.97
Error	19.56	0.43	46	
Total	20.40		47	

ANALYSIS OF COVARIANCE FOR "ARITHMETIC CONCEPTS"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 3

Source	SS	MS	DF	F
Treatment	2.96	2.96	1	3.16
Error	43.16	0.94	46	
Total	46.12		47	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "WORD MEANING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 4

Source	SS	MS	DF	F
Treatment	0.06	0.06	1	0.10
Error	29.47	0.61	49	
Total	29.53		50	

ANALYSIS OF COVARIANCE FOR "PARAGRAPH MEANING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 4

Source	SS	MS	DF	F
Treatment	3.39	3.39	1	4.06*
Error	40.03	0.83	48	
Total	43.42		49	

ANALYSIS OF COVARIANCE FOR "SPELLING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 4

Source	SS	MS	DF	G
Treatment	4.00	4.00	1	5.27*
Error	36.46	0.76	48	
Total	40.46		49	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "WORD STUDY SKILLS"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 4

Source	SS	MS	DF	F
Treatment	39.53	39.53	1	35.63**
Error	53.24	1.11	48	
Total	92.78		49	

ANALYSIS OF COVARIANCE FOR "LANGUAGE"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 4

Source	SS	MS	DF	F
Treatment	5.09	5.09	1	5.43*
Error	45.00	0.94	48	
Total	50.09		49	

ANALYSIS OF COVARIANCE FOR "ARITHMETIC COMPUTATION"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 4

Source	SS	MS	DF	F
Treatment	1.64	1.64	1	4.16*
Error	18.97	0.40	48	
Total	20.61		49	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "ARITHMETIC CONCEPTS"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 4

Source	SS	MS	DF	F
Treatment	12.34	12.34	1	21.89**
Error	27.07	0.56	48	
Total	39.41		49	

ANALYSIS OF COVARIANCE FOR "ARITHMETIC APPLICATIONS"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 4

Source	SS	MS	DF	F
Treatment	6.44	6.44	1	11.04**
Error	27.89	0.58	48	
Total	34.42		49	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "WORD MEANING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 5

Source	SS	MS	DF	F
Treatment	0.02	0.02	1	0.02
Error	50.85	1.06	48	
Total	50.87		49	

ANALYSIS OF COVARIANCE FOR "PARAGRAPH MEANING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 5

Source	SS	MS	DF	F
Treatment	0.01	0.01	1	0.02
Error	43.11	0.90	48	
Total	43.12		49	

ANALYSIS OF COVARIANCE FOR "SPELLING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 5

Source	SS	MS	DF	
Treatment	0.32	0.32	1	0.23
Error	65.22	1.36	48	
Total	65.54		49	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "LANGUAGE"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 5

Source	SS	MS	DF	F
Treatment	0.04	0.04	1	0.05
Error	40.55	0.83	48	
Total	40.55		49	

ANALYSIS OF COVARIANCE FOR "ARITHMETIC
COMPUTATION" SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 5

Source	SS	MS	DF	F
Treatment	1.44	1.44	1	2.37
Error	29.19	0.61	48	
Total	30.63		49	

ANALYSIS OF COVARIANCE FOR "ARITHMETIC CONCEPTS"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 5

Source	SS	MS	DF	F
Treatment	1.30	1.30	1	1.07
Error	58.62		48	
Total	59.92		49	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "ARITHMETIC APPLICATIONS"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 5

Source	SS	MS	DF	F
Treatment	10.56	10.56	1	5.99**
Error	84.71	1.77	48	
Total	95.27		49	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "WORD MEANING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 6

Source	SS	MS	DF	F
Treatment	0.01	0.01	1	0.01
Error	61.37	1.16	53	
Total	61.38		54	

ANALYSIS OF COVARIANCE FOR "PARAGRAPH MEANING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 6

Source	SS	MS	DF	F
Treatment	2.82	2.82	1	1.65
Error	90.57		53	
Total	93.39		54	

ANALYSIS OF COVARIANCE FOR "SPELLING"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 6

Source	SS	MS	DF	F
Treatment	5.29	5.29	1	1.71
Error	164.33	3.10	53	
Total	169.62		54	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "LANGUAGE"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 6

Source	SS	MS	DF	F
Treatment	4.36	4.36	1	2.80
Error	82.50	1.57	53	
Total	86.86		54	

ANALYSIS OF COVARIANCE FOR "ARITHMETIC COMPUTATION"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 6

Source	SS	MS	DF	F
Treatment	1.37		1	1.53
Error	55.81		53	
Total	57.18		54	

ANALYSIS OF COVARIANCE FOR "ARITHMETIC CONCEPTS"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 6

Source	SS	MS	DF	F
Treatment	0.44	0.44	1	0.25
Error	93.18	1.76	53	
Total	93.62		54	

APPENDIX B
(continued)

ANALYSIS OF COVARIANCE FOR "ARITHMETIC APPLICATIONS"
SUBSCALE OF STANFORD ACHIEVEMENT TEST
GRADE 6

Source	SS	MS	DF	F
Treatment	0.63	0.63	1	0.44
Error	76.93	1.45	53	
Total	77.56		54	

APPENDIX B
(continued)

ANALYSIS OF VARIANCE FOR PRE- AND POSTTEST
SCORES OF EXPERIMENTAL TEACHERS ON
"OPINIONNAIRE ON ATTITUDES TOWARD EDUCATION"

Source	SS	MS	DF	F
Between	90.00	90.00	1	1.29
Error	558.00	69.75	8	
Total	648.00		9	

ANALYSIS OF COVARIANCE FOR TEACHER
SCORES ON "OPINIONNAIRE ON ATTITUDES TOWARD EDUCATION"

Source	SS	MS	DF	F
Between	23.10	23.10	1	0.62
Error	261.84	37.41	7	
Total	284.94		8	

APPENDIX B
(continued)

REPEATED MEASURES ANALYSIS OF VARIANCE FOR
SPORTING HILL CLASSROOM OBSERVATION DATA

Source	SS	MS	DF	F
Subjects	1860.14	372.02	5	
Treatment (Observations)	4519.81	903.96	5	28.69**
Error	787.69	31.51	25	
Total	7167.64		35	

REPEATED MEASURES ANALYSIS OF VARIANCE
FOR WHITE OAK CLASSROOM OBSERVATION DATA

Source	SS	MS	DF	F
Subjects	3406.22	681.24	5	
Treatment (Observations)	8174.55	1634.91	5	6.59*
Error	2584.12	103.36	25	
Total	14164.89		35	

ANALYSIS OF VARIANCE FOR CLASSROOM
OBSERVATION DATA

Source	SS	MS	DF	F
Between	1692.42	1692.42	1	19.29**
Within	877.17	87.71	10	
Total	2569.59		11	

*Significant beyond .05 level
**Significant beyond .01 level

APPENDIX C

CORRELATIONS BETWEEN COVARIATE AND CRITERION
FOR ANALYSES OF COVARIANCE*

A. Self-Concept

1. Grades 1, 2 and 3	
Pictorial Self-Concept	.26
2. Grades 4, 5 and 6	
Piers-Harris Total Score	.69
Piers-Harris "Behavior" Subscale	.60
Piers-Harris "Intellectual and School Status" Subscale	.62
Piers-Harris "Physical Appearance and Attributes" Subscale	.50
Piers-Harris "Anxiety" Subscale	.62
Piers-Harris "Popularity" Subscale	.59
Piers-Harris "Happiness and Satisfaction" Subscale	.50

B. Attitude Toward School

1. "Faces" Inventory - Grades 2 and 3	
"Faces" Inventory Total Score	.34
"Faces" Inventory "School Learning" Subscale	.44
"Faces" Inventory "Independent Study" Subscale	.16
"Faces" Inventory "School Climate" Subscale	.10
2. "Faces" Inventory - Grades 4, 5 and 6	
"Faces" Inventory Total Score	.59
"Faces" Inventory "School Learning" Subscale	.53
"Faces" Inventory "School Climate" Subscale	.45
3. Days of Attendance	
Grades 1, 2 and 3	.47
Grades 4, 5 and 6	.84

C. Academic Achievement

1. Grade 2	
Word Meaning	.52
Paragraph Meaning	.55
Science and Social Studies Concepts	.62
Spelling	.29
Word Study Skills	.56
Language	.50
Arithmetic Computation	.41
Arithmetic Concepts	.57

APPENDIX C
(continued)

C. Academic Achievement (Continued)

2. Grade 3

Word Meaning	.52
Paragraph Meaning	.44
Science and Social Studies Concepts	.52
Spelling	.40
Word Study Skills	.53
Language	.61
Arithmetic Computation	.40
Arithmetic Concepts	.54

3. Grade 4

Word Meaning	.81
Paragraph Meaning	.78
Spelling	.72
Word Study Skills	.66
Language	.75
Arithmetic Computation	.59
Arithmetic Concepts	.74
Arithmetic Applications	.61

4. Grade 5

Word Meaning	.77
Paragraph Meaning	.83
Spelling	.74
Language	.77
Arithmetic Computation	.38
Arithmetic Concepts	.53
Arithmetic Applications	.51

5. Grade 6

Word Meaning	.78
Paragraph Meaning	.77
Spelling	.65
Language	.78
Arithmetic Computation	.62
Arithmetic Concepts	.53
Arithmetic Applications	.76

D. Teacher Attitudes

Opinionnaire on Attitudes Toward Education	.26

*All correlations reported here are between pre and post administrations of the same instrument, except for those in the Academic Achievement section. The correlations reported here are between scores on the Otis-Lennon Mental Abilities Test and scores on the various subscales of the Stanford Achievement Test.

APPENDIX D

RESPONSES TO PARENT AND PUPIL QUESTIONNAIRES

Given at Sporting Hill School - January 1973

Parent Response to Open Concept Evaluation

Participants - 122 parents returned the questionnaire

1. My child seemed to adjust to the new "open" program.

60.5 per cent	a.	Immediately
27.2 per cent	b.	After the first week
12.3 per cent	c.	Gradually
0	d.	Never

2. Did your child ever comment that he did not want to attend school before this year?

37.6 per cent	a.	Yes	62.4 per cent	b. No

3. Did your child ever comment that he did not want to attend school this school year?

16.1 per cent	a.	Yes	83.9 per cent	b. No

4. Are you pleased with the "open" program?

85.3 per cent	a.	Yes
11.9 per cent	b.	No
2.8 per cent	c.	No Response

5. Do you feel the program is realistic?

83.5 per cent	a.	Yes
9.1 per cent	b.	No
7.4 per cent	c.	No Response

6. My child seems to like this school and enjoys the program.

96.6 per cent	a.	Yes
.9 per cent	b.	No
2.5 per cent	c.	No Response

7. Would you suggest having some of the activities of this school incorporated into other schools of this district?

72.6 per cent	a.	Yes
11.0 per cent	b.	No
16.4 per cent	c.	No Response

8. Does your child seem to accept the responsibility of working on his own?

84.6 per cent	a.	Yes
8.1 per cent	b.	No
7.3 per cent	c.	No Response

9. Does too much independent time to do school work in a classroom or school hinder a child's academic progress?

22.1 per cent	a.	Yes
61.4 per cent	b.	No
16.5 per cent	c.	No Response

10. Is your child's interest at heart by the teachers as a result of the "open" program at Sporting Hill?

76.7 per cent	a.	Yes
6.0 per cent	b.	No
18.3 per cent	c.	No Response

11. Did you obtain satisfaction from the Progress Report procedure used to report the progress of your child?

75.6 per cent	a.	Yes
17.1 per cent	b.	No
7.3 per cent	c.	No Response

12. My child likes the following things about Sporting Hill: (Recorded are the number of instances the general topic was mentioned.)

44	a.	"Movin-&-Groovin"
30	b.	The informal atmosphere of the school and staff members
29	c.	Teachers!
24	d.	Everything!
19	e.	To be given the responsibility of doing independent work
16	f.	Carpet!
11	g.	Individualized instruction
11	h.	Learning stations
9	i.	Doing contracts in various subjects

13. My child dislikes Sporting Hill because of the following reasons:

5	a.	Lack of individual desks
4	b.	Having tubs to keep belongings in
4	c.	Student teachers leaving
3	d.	Bus problems
3	e.	Mr. Balmer leaving

APPENDIX D
(continued)

14. Please feel free to make any other comments about the "open" program as you have seen in this year at Sporting Hill.

15 a. A wonderful program!
5 b. The program provides a better opportunity for social adjustment and opportunity to assume responsibilities.
5 c. Individual differences are accepted.
5 d. The staff works hard.
5 e. The informal atmosphere is looked upon as a negative characteristic.
5 f. Better discipline is needed.

15. Would you be willing to make your thoughts public about the "open" program?

42 a. Yes
52 b. No
35 c. No Response

60 In favor of the program
12 Not in favor of the program
41 No Response
6 Not sure at this time

APPENDIX D
(continued)

Given at Sporting Hill School - January 1973

Pupil Response to Open Concept Evaluation

Participants - 133 pupils in Grades 1-6

1. How do you compare Sporting Hill School this year to last year's school?

88 per cent	a.	This year is more interesting.
3 per cent	b.	This year is less interesting
8 per cent	c.	It is the same.
1 per cent	d.	No response

2. How often did you feel as though you didn't want to come to school last year?

26 per cent	a.	Never
41 per cent	b.	Sometimes
19 per cent	c.	Often
13 per cent	d.	Always
1 per cent	e.	No response

3. How often did you feel as though you didn't want to come to school this year?

70 per cent	a.	Never
20 per cent	b.	Sometimes
5 per cent	c.	Often
5 per cent	d.	Always

4. Do you enjoy the freedom of this school?

97 per cent a. Yes 3 per cent b. No

5. Do you want this school to continue as it is now?

97 per cent a. Yes 3 per cent b. No

6. Do you think other schools in this school district should be like this school?

77 per cent	a.	Yes
20 per cent	b.	No
3 per cent	c.	No response

7. I like this school because:
(Recorded are the number of instances the general topic was mentioned)

68 a. "Movin-and Groovin"

53 b. The freedom to move from area to area in doing work.
46 c. The teachers are nice.
37 d. Carpet!
36 e. Doing contracts in various subjects and the free use of time after the contracts are completed.
32 f. Individualized instruction and to be able to work at one's own speed.
21 g. In doing school work it still is fun.
18 h. Math (individualized and contracted)
16 i. Reading - Language Arts (individualized and contracted)
14 j. Having many audio-visual materials available for use.

8. I dislike this school because:
(Recorded are the number of instances the general topic was mentioned.)

52 a. Nothing (Either the word "nothing" was written or there was no response.)
23 b. Do not like carrying the tubs, and the tubs are not substantial.
10 c. Sometimes too noisy
9 d. Would like to have own desk
6 e. Bus problems
6 f. Teachers leaving
5 g. Dislike science
5 h. Teachers leaving room. (All related to the head teacher being called out.)

9. Make any other suggestion or comment about this school you wish.
(Recorded are the number of instances the general topic was mentioned.)

8 a. "Movin-and-Groovin" should be longer.
7 b. Have more recesses or have longer recesses.
7 c. Favorable comments about teachers or staff members.
6 d. We like it! or We love it!
5 e. Would like to have better tubs.
4 f. Like the carpet.
4 g. Would like to have own desks.
3 h. Like Thursday's early dismissal.
3 i. Like contracts.
3 j. Wish they could eat in the hall.

APPENDIX E

RESPONSES TO TEACHER QUESTIONNAIRE

Name:_____
School:_____

List the five major student related objectives you feel you have achieved this year while working in the open classroom program that you could not have achieved, or would have had difficulty achieving, in a conventional classroom setting.

1. We use a more individual approach to instruction--meet the child where he is.
2. We use more varied approaches in teaching since we have the team teaching situation.
3. Kids of all ages are working together happily--taking responsibilities for themselves and others.
4. Kids seem to be much more responsible for themselves and their possessions.
5. Different teachers in same setting enable us to give added help to kids having special problems.

List the five major problems you have encountered while working in the open classroom which appear to be a direct result of the nature of the program.

1. Housekeeping
2. Different types of lessons going on simultaneously, and therefore, because of openness, causing some problems
3. Movement involved in this type of program poses distractions for some kids
4. Planning time (lack of)
5. Limited space to do varied activities
6. Needed a workable skill sequence to keep track of progress

Given your experience with teaching in the open classroom, what would your five major objectives, in terms of students, be for the second year of the program.

1. Do as much cross grouping (age) as possible. We have found quite a change in school attitude.
2. Better use of student teachers
3. To cope with children easily distracted, we have set up a special quiet place for them to work.
4. We now have (relatively) workable skill sequences for math and language arts.
5. We are attempting to break down the imaginary barrier between primary and intermediate.

APPENDIX E
(continued)

Name:_____
School:_____

List the five major student related objectives you feel you have achieved this year while working in the open classroom program that you could not have achieved, or would have had difficulty achieving, in a conventional classroom etting.

1. I have taken away some of the pressure on the student to achieve to a predetermined level.
2. I have given more individual attention to slow learners; had an opportunity to challenge more able students on their level.
3. I have given the students more opportunity to learn from one another.
4. I have given the students a daily opportunity to be with a varied age level, more of a chance to develop socially.
5. I have given the children more choices than I had in previous teaching.

List the five major problems which you have encountered while working in the open classroom which appear to be a direct result of the nature of the program.

1. Visitors
2. Lack of planning time for six teachers together--broke down total teamness to three and three
3. Housekeeping
4. Losing pencils
5. Not having specials nongraded

Given your experience with teaching in the open classroom, what would your five major objectives, in terms of students, be for the second year of the program.

1. To coordinate available materials to provide for better use of my time during the school year--giving me more pupil contact time--better prepared to meet their needs.
2. To try to give them more choices regarding curriculum.
3. Have the children become more familiar with the intermediate areas to avoid the break between primary and intermediate levels.
4. Provide a silent area for students who work best under those conditions.
5. Provide a more closely supervised area for children who need this.

APPENDIX E
(continued)

Name:_____
School:_____

List the five major student related objectives you feel you have achieved this year while working in the open classroom program that you could not have achieved, or would have had difficulty achieving, in a conventional classroom setting.

1. Ability grouping to a far greater extent.
2. Team-teaching working and planning together with fellow teachers.
3. Teaching a variety of children with different abilities. Groups change frequently.
4. Unified media center. This is unique for country schools such as ours.
5. Relaxed atmosphere conducive to learning and teaching.

List the five major problems you have encountered while working in the open classroom which appear to be a direct result of the nature of the problem.

1. Housekeeping--since the students do not have desks of their own, they feel as though nothing belongs to them.
2. Noise--when there is a lecture lesson in one part of the room and there is a quiet lesson in another part of the room.
3. The fact that some kids are distracted in an open setting and need an area that is quiet.
4. The need for a skill sequence in math.
5. Flexibility--the fact that sometimes you could use more time in your lessons, but your other team member may be finished.

Given your experience with teaching in the open classroom, what would your five major objectives, in terms of students, be for the second year of the program.

1. A quiet room for students who are easily distracted.
2. Cross-grouping between primary and intermediate students and teachers.
3. Having the students becoming more involved in the curriculum and in the making of learning stations--student centered activities.
4. Development of a skill sequence in math to better meet the needs of the students.
5. Better use of student teachers to help meet the needs of the students.

APPENDIX E
(continued)

Name: _____
School: _____

List the five major student related objectives you feel you have achieved this year while working in the open classroom program that you could not have achieved, or would have had difficulty achieving, in a conventional classroom setting.

1. Team teaching
2. Ungrading
3. Individualizing instruction and a related objective. In most cases children have accepted responsibility.
4. Family grouping
5. Open space setting--physical

List the five major problems you have encountered while working in the open classroom which appear to be a direct result of the nature of the program.

1. Lack of adequate planning time
2. Too many visitors
3. Difficulty in housekeeping. Because of almost constant movement and regrouping of children, they do not feel that any particular area belongs to them.
4. We should have an area which could be closed off temporarily for lecture-type lessons where quiet is needed.
5. For some children activity of programs is too distracting and they cannot concentrate.

Given your experience with teaching in the open classroom, what would your five major objectives, in terms of students, be for the second year of the program.

1. Improve record keeping
2. Regroup children more effectively.
3. Have separate area with one teacher where some children could have language arts and math where they would not be distracted by activity of normal program.
4. Give more opportunity for children to work in groups.
5. Give some children more opportunity to determine their own learning tasks.

APPENDIX E
(continued)

Name:_____
School:_____

List the five major student related objectives you feel you have achieved this year while working in the open classroom program that you could not have achieved, or would have had difficulty achieving, in a conventional classroom setting.

1. Cross-grade grouping
2. Individual contract checkouts and pupil conferences
3. Students benefitted from a unified media center and much more audio-visual equipment which they personally could handle.
4. With team teaching, students received a more varied background as each teacher taught what he was best in or liked best.
5. Students were exposed to more teaching personalities and had a chance to confide in the one he chose to.

List the five major problems you have encountered while working in the open classroom which appear to be a direct result of the nature of the program.

1. Too many visitors
2. Noise--especially when one teacher was having a lecture demonstration and the teacher beside her was having a noisier activity.
3. Housekeeping--students did not feel responsible for keeping any areas clean, possibly because they didn't have one specific desk or room which was theirs.
4. Lack of planning time to meet with other team members
5. Misuse of supplies by children. Much art material was wasted and audio-visual equipment was frequently broken.

Given your experience with teaching in the open classroom, what would your five major objectives, in terms of students, be for the second year of that program.

1. To build into the program a better system for housekeeping and using audio-visual equipment
2. To restructure the math and science curricula to include more inductive learning and pupil discovering of concepts.
3. Regrouping of students to eliminate the strict primary-intermediate division
4. To plan together the stations used in language arts and math to avoid repetition.
5. Find time for teaching and also for individual checkouts in reading and math